Production & Welfare
OF AGRICULTURE

Production and Welfare of Agriculture

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Production and Welfare
OF
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by Theodore W. Schultz
PROFESSOR OF ECONOMICS
THE UNIVERSITY OF CHICAGO

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Preface

In this book I endeavor, in a series of studies of American agricultural policy, to untangle the economic strands of that policy. I try to isolate and make explicit the objectives that have guided policy since World War I, and to indicate in this connection the stress that has been placed upon equality for agriculture, income, prices and upon the family farm as a social and economic institution. I undertake the task of determining whether these are meaningful objectives for policy and in doing so consider briefly a more comprehensive formulation of social action in order to classify and identify the economic aspects of policy. Two basic policy objectives having important economic content emerge. One of these pertains to the allocation of resources where the focus is upon efficiency in production and the other to the personal distribution of income where certain ideas with regard to social efficiency are clearly in the foreground. The social task of achieving an efficient allocation of resources and also that of attaining less inequality in the personal distribution of income are both viewed as problems in welfare.

Although I show that it is necessary to separate the resource and the income problems and to set up a system of income accounting to indicate the functions and the effects of income when it acts as incentives in bringing about an efficient use of resources in farming and when it acts as purchasing power available for farm family living, I do not inquire into the problem of poverty in agriculture nearly as far as I do into the effects of economic instability and of progress upon the allocation of resources in farming. The reasons why these studies are mainly concerned with the better allocation of resources arise from the fact that a substantial part of the poverty in agriculture has its roots in the widespread underemployment that exists on many under-sized, poorly equipped farms operating with altogether too little capital to establish a firm of optimum scale and that measures taken to diminish these maluses to which resources are put, will increase the national product. This means, however, that I do neglect the income problem viewed

strictly as a problem arising out of the existing unequal distribution of income among persons and families and that would exist even if resources were employed efficiently. But I am fully aware of this omission. I simply have not as yet had the time to explore this aspect of low, farm, family incomes.

In this book I give considerable space to the policy implications of certain basic changes occurring within the existing economic structure as a result of the decline of agriculture, the achievement of a high level of industrial employment and output, the reduction of capital rationing within agriculture and the much enlarged scope of public programs and their administration. I also try to trace the resource and income effects of existing price, storage, crop control and conservation programs, and then to indicate the bearing that these programs and that of certain international efforts on behalf of agriculture have upon foreign trade.

There remain certain basic matters on which I wish to touch in introducing the reader to these studies. In analyzing economic policy it is necessary to isolate the significant elements involved in the formation of policy and to do this it is necessary to abstract from others. The underlying argument on which these studies are based is as follows: The organization, function and operation of the economy are subject to social control. Economic policy is the active, conscious choice of this control. The formulation of economic policy is therefore one form of social action and it can be analyzed as such. The formation of policy in any meaningful sense presupposes a society or a sector of a society which has some freedom of action in determining policy and which has a set of institutions for maintaining and changing policy. If none of the underlying values were held in common, no society exists; if no freedom of action were at hand, no policy decisions are open; and if no policy-making institutions were established, it is impossible to engage in the formulation of policy. It should be said, therefore, that these studies all rest on the belief that there does exist a sufficient area of agreement with regard to the underlying values to give us a society, that some freedom of action is open to us in shaping economic policy affecting agriculture and that the prevailing institutions make possible order and continuity in the formation of policy.

Policy formation is inescapably a political process subject to the rules and procedures which our traditions and institutions impose on politics. Needless to say, the purposes, strength and weaknesses of these traditions and institutions are not the burden of these studies. This is another way of saying that even when economic policy is under consideration,

policy formation goes beyond economic analysis for it involves a more comprehensive undertaking since additional elements of social actions enter of necessity. It is both useful and necessary in this connection to distinguish between the political form and the economic substances of economic policy. In this book I concentrate on the economic substance, that is, on the allocation of resources to achieve as nearly as possible an *optimum* production and on ways and means of diminishing the income inequality with the *least* impairment of the productive capacity and efficiency of the economy.

In preparing this book I drew heavily on materials that I had published in economic journals. Acknowledgments are due to the editors of the *Journal of Farm Economics, American Economic Review, Journal of Political Economy, The Canadian Journal of Economics and Political Science,* and *The Western Farm Economic Association,* and to The University of Chicago Press and editors of *Family Farm Policy,* to the Division of Research, Department of Government of The University of New Mexico, and to the editor of *The Public Land Question in New Mexico*—for their kind permission to include in this book the materials that had appeared in my articles.

Theodore W. Schultz

July 12, 1949

Contents

PART I

Objectives of Policy

1

A Framework for Policy Objectives

THE AIM OF THIS STUDY is to formulate the necessary principles, rules, and procedures for achieving meaningful policy objectives affecting agricultural production and the welfare of farm people. To do this, however, is exceedingly difficult because the objectives of policy are usually vague in conception. More often than not they are inconsistent one with another, for all too seldom are they integral parts of a comprehensive system of means and ends. One of the major sources of this difficulty arises from the fact that the beliefs and values underlying the objectives of policy are not made explicit; they are mostly hidden, like the bulk of an iceberg afloat at sea. All this is characteristic of our legislative acts, of government reports on the effects of various public programs, and of economic analysis generally when it comes to a study of policy.

The indefiniteness that commonly characterizes policy objectives may be illustrated by taking a policy area such as soil conservation where the requirements are usually (but erroneously) thought of as consisting of precise and straightforward physical operations. Soil conservation has long been advanced as a worthy policy objective. Let it be agreed that we should conserve our soil resources. But what precisely does this objective mean? Obviously, it has a host of different meanings unless the basic conditions and circumstances are carefully specified. Nor can its meaning be made unambiguous by a mere appeal to the physical characteristics of the soil. It is necessary somehow to relate the interests and values of the national community, of the locality, and of producers who use the land to the soil, to its function in society, and to the way it is used in formulating this policy objective. Costs and returns cannot be left out of consideration as completely as often happens in "pushing" for particular soil-conserving programs. There is always the question, and it is a significant part of the query: At what costs are we prepared to

undertake conservation practices? No community, whether the bill is borne by producers, by the locality, or by the nation, can afford to stabilize the infertile sands of vast desert areas unless and until they promise to have some value to society; nor can a people afford to stop the age-old erosion of bleak and barren mountain peaks. No doubt these are extreme cases; they are intended merely to illustrate the importance of formulating policy objectives in a meaningful frame of reference.

The Employment Act of 1946 is still another example of "indefiniteness" in policy objectives. Section 2 declares that it is the purpose of the Act "to promote maximum employment, production, and purchasing power." What does this objective specify? Surely it does not imply simply a lot of work, tons of steel, bushels of wheat, and dollars. Sixty or more million persons working don't necessarily give us maximum production. People may be working too hard and too long or not enough. They may be engaged in unimportant work or doing useful work inefficiently. Nor does a gross national product, valued at any given figure, be it 200 billion dollars or more, tell us that the resources of the United States are fully and efficiently employed.

What then is maximum employment, production, and purchasing power? This objective as things now stand is still chiefly a political goal, consisting of many uneasy compromises among conflicting values and views regarding the character of the economy. As an operational concept it is vague, indefinite, and highly subjective. Each interest group is prone to interpret the objective specified in the Employment Act of 1946 to fit its own interest and all too frequently with a profound indifference for the general welfare. One group's concept of "maximum employment, production, and purchasing power" can lead only to inflation; another's to deflation; one view would give stagnation, another economic instability. Higher support prices for farm products, higher corporate profits, and higher wage rates are not the ingredients out of which an efficient and stable economy is made. Clearly the necessary conditions for achieving such an economy are not to be found in the folklore of any special interest group. We need in this, as in other cases, an unambiguous, explicit policy objective; one that is free from certain social biases, and free from hidden political purposes. We need to formulate the objective so that it can be identified, and to do this it is necessary to cast policy objectives in a comprehensive means-end mold.[1]

[1] The first and second annual reports to the President of the Council of Economic Advisers, December, 1946 and 1947, discuss some of the difficulties inherent in the objective of the Employment Act of 1946. These discussions are, however, essen-

1. Within a means-end framework

This is not the place to review methodological issues or to state the case for the means-end schema in analyzing social problems. Suffice it to say that policy objectives having economic content fall largely in the category of means, although economic activity, especially the way in which things are done, touches upon values that are far up the scale of our ultimate ends. There is a strong presumption in our beliefs that if the government participates too actively and directly, for example in bringing about economic efficiency, the freedom of action of firms and households, namely of businessmen, farmers, laborers, and consumers, will be reduced. This in turn, so it is presumed, will weaken the foundations on which our social and political freedom rests. Despite the subtle far-reaching issues this raises, political economy as an analytical apparatus contributes mainly to an understanding of the social process falling in the intermediate zone of the means-end schema.[2] Take the two policy objectives already considered: To conserve our soil resources and to achieve maximum employment, production and purchasing power (assuming that it were possible to formulate both of these rigorously) are certainly not ultimate ends by any standard of values.

Agricultural policy is a complicated apparatus with many gadgets—support prices, crop loans, commodity storage, product diversion, crop insurance, soil conservation, range management, marketing quotas, acreage allotments, parity payments, and many others. All these are essentially techniques; they are ways of achieving some objective; they are not the objective, however. If agricultural policy in the United States can be said to have had a central focus during the last two decades, it has been that of "improving" farm prices. This has come about as a result of placing parity prices in the position of ends, but prices obviously do not function as ends in production, savings, and consumption; on the contrary they should be viewed and be permitted to act as a system of controls for achieving economy.

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tially philosophical, touching on some of the value issues; they are "optimistic" rather than realistic in their conception.

[2] See: Talcott Parsons, *Structure of Social Action*, New York: McGraw-Hill, 1937, chiefly Chaps. 1, 2, 3, and 19. Gunnar Myrdal, *The American Dilemma*, New York: Harper & Bros., 1945. App. 1 and 2. A. C. Pigou, *The Economics of Welfare*, London: Macmillan, 1904, 3rd edition, Chaps. 1, 2, 3, and 4. D. Gale Johnson, *Forward Prices for Agriculture*, Chicago: University of Chicago Press, 1947, Chaps. 2, 3, 7, and 8. D. Gale Johnson, "The Use of Econometric Models in the Study of Agricultural Policy," *Journal of Farm Economics*, Vol. XXX, 1948.

How then does one get at the objectives of policy? The array of agricultural measures already listed do not have the attributes of objectives, but of administrative (public) techniques, that is, techniques for achieving some goal. If these objectives were appropriate to our social structure and for the problems for which they were designed, and further, if they were formulated clearly and unequivocally, the task of evaluating the usefulness of these techniques would be greatly facilitated and usually fairly straightforward. We need some bases for identifying and classifying the fields of social action having economic content involving problems in policy.

2. *From problems to classification*

One approach is to attempt to put one's hands on the significant problems having economic content—in substance, basic economic problems of vital interest to the national community. Despite the thoughtful work that has been put into the concept of "economic welfare," it hardly will suffice at this point because of its generality. We need more specificity in order to identify the main problems, and after having done this, seek a useful classification.

Under certain circumstances and conditions countries have put the problem of trade high among policy issues, as did the United Kingdom during the latter part of the eighteenth and all of the nineteenth centuries. More recently most Western countries have become deeply concerned about mass unemployment. The wasteful use of natural resources has come to rank high. One of the dominating interests of economic statesmanship for many decades up to World War I was that of averting inflation to protect the creditor and thus maintain the high rate of savings; more recently it has shifted to that of avoiding deflation with stress on keeping the rate of savings from exceeding investments. Then again, the problem of the food supply has been put in a dominant position, whether it be the "power of population" exceeding the "power of production" [3] as in the Malthus-Ricardo formulation or the more recent concern about "surpluses" of farm products. All these problems in terms of their economic content, however, have one common fundamental characteristic, namely, they require for their solution changes in

[3] Ricardo put it thus: "Although, then, it is probable that under the most favorable circumstances, the power of production is still greater than that of population, it will not long continue so; . . . there will be a decreased rate of production, whilst the power of population continues always the same." p. 56 of *The Principles of Political Economy and Taxation,* Everyman's Library, edited by Ernst Rhys.

the allocation of resources—the objective being in some socio-economic sense the maximization of productive efforts.

Another set of significant problems having major economic effects, about which especially Western peoples have become increasingly aware, can be identified as those pertaining to economic inequality. The problem of inequality in wealth and income *within* a country has given rise to progressive income and estate taxes. Inequality measured in terms of food, medical facilities, housing and education have become in more recent decades specific points of focus for policy. Greater equality of opportunity, particularly for the youth, and improvement of the social efficiency of all people, are social goals that present problems that have moved a long way up the list of the major issues of national concern. The interest of a national community in this set of problems points to a basic underlying policy objective, namely that of lessening the existing inequality in the personal distribution of income. This policy objective, however, is not primarily economic in its attributes, but in solving the problems associated with economic inequality important economic effects must be taken into account.

This approach to identifying the more important public issues having basic economic content points to the following classification: [4]

1. Problems that arise out of the existing imperfections in the allocation of resources where the principal policy objective is that of achieving greater economic efficiency, and

2. Problems that arise out of the unsatisfactory personal distribution of income where the major policy objective is that of achieving greater economic equality.

3. From economics to classification

A second approach to a classification of economic problems is to start with the existing ideas and thought in economics and work out from this knowledge and the insight that it gives one on public issues. It is along this avenue that we must proceed to discover the hypotheses that are appropriate for economic analysis.

The classical core of economics is a powerful engine for analyzing the problems associated with economic efficiency chiefly in their long-run

[4] See Theodore W. Schultz, *Redirecting Farm Policy*, New York: Macmillan, 1943, Chap. 4; also Theodore W. Schultz, *Agriculture in an Unstable Economy*, New York: McGraw-Hill, 1945, Chap. 12; D. Gale Johnson's *Forward Prices for Agriculture*, Chicago: University of Chicago Press, 1947, Chaps. 2, 3, 7, and 8; D. H. Robertson, "The Economic Outlook," *Economic Journal*, Vol. XL, December, 1947, especially pp. 434–437.

setting. This analytical apparatus was developed in the main to ascertain the policies that will maximize the "powers of production" and the gains to be had from trade. This apparatus provides the essential hypotheses for identifying economic inefficiency and for evaluating the performance of administrative (whether public or private) techniques and institutions that shape and guide production, savings, and consumption. Its strength lies in indicating the type of adjustments that are required to achieve economy in the allocation of resources over the long run. It has been weak, however, in providing fruitful hypotheses for getting at the causes and for controlling the sudden fluctuations in the main economic magnitudes that have come to characterize our economy.

Recent economic thinking, however, has devoted a good deal of attention to the problems associated with economic instability, but as yet the theoretical apparatus for analyzing these problems does not rest on nearly as firm foundations as does the work of the older economists developed to deal with economic efficiency. Moreover, although the instability of the economy has profound adverse effects on the allocation and use of resources, it has not proved possible to bring the classical apparatus to bear successfully on this aspect of malallocation. And, to the extent that a body of theory has emerged to rationalize the sudden fluctuations in employment and income, it has not been integrated satisfactorily with the main core of economic theory. It is in the main still a thing apart.

Economists have long been concerned about the problems that arise out of the inequality in income and wealth among persons within a country (not, however, about the inequality that exists between and among countries). In seeking to minimize whatever adverse effects a change in the personal distribution of income has upon the process of allocating resources efficiently, main reliance has been placed upon progressive income and estate taxation. It is increasingly clear, however, that progressive taxation rates high enough to meet the social objectives of western national communities, given the social values that now predominate in policy-making, have certain adverse effects on the allocative process of the economy. It may well be that other *means*, in addition to progressive income taxation, must be developed to lessen the economic inequality among persons; administrative techniques and institutions are needed which when employed in conjunction with progressive income taxation will have fewer adverse effects upon the capacity of the economy to function efficiently.

Our second approach working out of the framework provided by

existing economic ideas and thought indicates the following classification of problems in policy:

1. The basic analytical core of political economy is based upon the *maximization* of the gains to be had from production and trade by achieving *a.* an efficient allocation of resources (with the main stress on long-run relationships) and, *b.* sufficient stability of the main economic magnitudes to permit the economy to perform efficiently in (*a*) above; and,

2. The *minimization* of the adverse economic effects of public measures intended to reduce the inequality in the personal distribution of income on the capacity of the economy to perform its task of keeping resources fully and efficiently employed.

These two approaches give essentially the same results when employed to classify economic problems having major policy implications. Nor should this similarity in results come as a surprise. Economic analysis has always been problem-solving in its orientation; it has been a "fruit-bearing" type of inquiry; it has always had, and properly so, a policy orientation—for that is the real meaning of political economy.

2

Equality for Agriculture As a Policy Goal

POLICY-MAKING in the United States has been shaped substantially by a belief widely held that agriculture is at considerable disadvantage in the way a modern economy develops and fluctuates, that it is burdened somewhat by monopoly elements in business and in labor, that it bears an undue share of the "costs" of rearing the youth of the country, and for these and other reasons, agriculture has certain moral claims on the rest of the national community. This belief has given strong support to those who contend that the first objective in policy in this sphere should be that of achieving equality for agriculture. In this chapter we shall direct attention briefly to the query: What are the attributes of this notion "equality for agriculture" that are meaningful in the formulation of policy?

These introductory observations suggest that the idea of equality for agriculture has become a loosely formulated policy objective. But how much content does it have for economic analysis? In exploring this matter we shall assume that it is an objective that is consistent with the ultimate values of our national community and accordingly that it can be achieved within the setting of a democratic state. The task then is one of finding out whether it can be resolved into meaningful components. Can equality be defined in qualitative and quantitative terms that have meaning for economic inquiry?

We need to turn back for a moment to the framework for policy outlined in the previous chapter. Clearly, the concept of equality for agriculture is in substance an end; it is not one of the means to be employed in administering the economy. Once we have disentangled measures from goals we will put aside most of the confusion that has characterized discussions of this topic. It may not be amiss to repeat that policies and programs are by definition (and in operation) *means*. They are instruments for attaining social, political, and economic objec-

tives. In an economic context both *prices* and *incomes* are of the nature of means; in production, they act as incentives to producers, and in welfare, income acts as purchasing power for people. Neither prices nor incomes are in any ultimate sense of the nature of ends. The connection —if one exists—between prices and incomes on the one hand, and equality for agriculture on the other, therefore is as *means are to an end.*

As a policy objective, equality for agriculture contains two decisive terms, namely, "agriculture" and "equality." Although agriculture connotes many things our concern is with policy issues from the point of view of economic analysis and these may be explored under the following two objectives, namely:

1. Those pertaining to *agricultural production*—the efficient use of resources to produce farm products, and

2. Those pertaining to the *welfare of farm people*—a satisfactory distribution and utilization of income among persons on farms.

In the main agricultural policy has been a much confused mixture of these two goals. The failure to distinguish between them has given rise to two serious errors. One of these has had its roots in the belief that solving the production problems in agriculture would be sufficient to achieve the welfare goal. To put this belief another way, it assumes that efficient production—using the best crop and livestock practices, on farms of the proper size, with low cost credit, conserving the soil, and marketing wisely—will by itself provide farm people with the necessary incomes to attain acceptable standards of welfare. As a result of this belief the primary emphasis in agricultural policy in the United States has been on improving the production of food, feed, and fiber and very little directly on advancing the welfare of farm people.

A second mistake has been the practice of mixing production and welfare into a policy brew so spiced that no one could distinguish one ingredient from another. This mixing of policy objectives has led to much disorder and waste; all too often, as a result, particular farm programs have made no contribution to either production or welfare.

There has been a serious neglect of the welfare of farm people, and it is no wonder that farm people have fallen behind in education, nutrition, housing, modern medical facilities, free time, old age and disability benefits, and other phases of social security. In a deeper sense we may well regret that these two basic goals of agricultural policy were not put into the name of the Department of Agriculture, for agriculture might have fared much better if at the outset these two fundamental purposes had been made a part of the charter, namely,

had we started with a Department of Agricultural Production and Welfare.

This dualism within agriculture rests on a functional dichotomy of *resources for production and income for welfare.* It is very important to make this separation in properly formulating our present-day problems in agriculture. From the point of view of society in terms of political economy, the objective in production should be put as follows: To achieve economy in the use of resources. The test for this achievement is allocative efficiency. In welfare the objective should be stated along these lines: A level of income, a distribution of income among persons, and a utilization of income to achieve the highest attainable level of welfare. Here the test of achievement is in terms of social efficiency. Production, therefore, from the point of view of political economy should be geared to allocative efficiency, and welfare should be meshed into social efficiency.

The second decisive term is "equality." Is it feasible to put the idea of equality into objective terms so that it will have meaning in analysis and practice? The answer is wholly negative unless we separate the major social problems in agriculture having economic content into two major categories, along the lines indicated earlier and apply the appropriate test to each.

We can conceive and define equality in the economy of production where the test is allocative efficiency, and the indicator for this test is to be found in the rates of return of resources used in agricultural production. When the rates of return of capital, land, and labor resources are less or more than the rates of return for similar capital, land, and labor in other fields of economic endeavor, equality does not exist. This formulation gives us an operational test, one that can be applied in practice. Moreover, the test has a firm foundation in economic analysis and it can, therefore, be made rigorous and objective. What is even more, it provides a meaningful basis for determining parity, a parity in production based on allocative efficiency on which economy depends.

We can also conceive of equality in the sphere of welfare where the test is in terms of social efficiency and where the indicators are to be found in those aspects of welfare in which society has a concern. In this case the comparison turns on education, nutrition, housing, security, and medical services because they are important parts of welfare. Since minimum standards are the recognized first objective as the national community has taken measures to improve welfare, the test is not

over-all equality among families within agriculture, or between families in agriculture and the rest of society, but certain minimum standards.

Equality for agriculture, therefore, need not be an empty, wholly subjective, and essentially meaningless political phrase. When we see clearly the dichotomy inherent in social problems associated with economic activity, namely, that of production and welfare, one focusing upon the allocation of resources and the other upon the distribution of income among people, the policy objective—equality for agriculture—can be given both qualitative and quantitative dimensions consistent with the social, political, and economic values of our society.

3

Resources and Income Objectives

TO OBTAIN A COMPREHENSIVE VIEW of existing practices and policies it is necessary to sacrifice detail and for the most part specific content. To gain generality, we have classified the economic problems of agriculture of national import into two major groups. One of these we shall now call the *resource problem*—that arising from the allocation of resources, for which the necessary analytical procedures are well established; and the second we shall refer to as the *income problem*—that pertaining to the distribution (and use) of income among people.[1]

Neither the resource nor the income problem as formulated above is peculiar to agriculture. Both are as fundamental to the economy of mining, transportation, professional services, or any other field as they are to farming. What is important, however, is a clear understanding of the fundamental nature of the dichotomy which separates them. It will be one of the major purposes of this chapter to demonstrate that the differences between the two categories of problems are basic and real not only for purposes of analysis but also in the formulation of more rational policies and programs for agriculture.

Because many of the more important limitations of existing agricultural programs, as will be shown subsequently, are directly ascribable to the fact that there has been no clear-cut differentiation between the problem of allocating resources and that of distributing income, it is necessary to establish the significance of this distinction. There is a deep-seated disposition on the part of both citizens and public servants, and of farmers and members of the administrative and policy-formulating personnel of the Department of Agriculture, to look upon the economics of

[1] Income distribution in this context, obviously, should not be confused with the functional distribution of income (usually discussed in textbooks on economics) which results from the rewards to resources in the form of rent, interest, and wages paid to individuals who possess the resources. The distribution of income among persons, on the other hand, when made the object of policy can be affected by taxation, grants and aids, subsidies, and by other measures. Education may be made a "free" good; health services, school lunches, supplementary food to improve diets, managerial advice, assistance in migration, old-age assistance and pensions are among the means for changing the distribution of income.

resource use and of income distribution as one and the same problem. What happens when this is done is that either one or the other of the following two extreme approaches usually results: (1) It is supposed that when the economic system operates at "full" capacity, automatically and simultaneously the allocation of income to individuals and families in society will be solved; or (2) that in order to increase the income of those individuals and families with inadequate income, it is necessary to raise the rate of payment to the resources which such individuals have to contribute to economic production.

It should not be necessary to demonstrate the falsity of either of these two positions. On the one hand, it is all too apparent that the productive resources that many families, both in and out of agriculture, possess are too few and their productivity too small to earn for the families concerned an adequate income even when used at an optimum rate; and on the other hand, to enforce a price for any given resource which is higher than the value of its marginal product is to cause some of those resources to become unemployed. Economists have been all too prone to concentrate all their attention on the first of these two sets of problems (that of the allocation of resources), quite to the neglect of the other. One cannot help wondering if there is not an implicit belief lurking in their unexplored "moral" presuppositions that somehow the distribution of income among individual members or families of society takes care of itself through the rewards which are paid to the owners of resources for their contribution to production.[2]

1. *Complementariness of objectives*

The agricultural programs of the federal government are in most instances trying to effectuate both a better use of resources and a better distribution of income. These two objectives are in some cases highly complementary; and accordingly by attaining the first, a good deal is accomplished for the second.[3] Under many circumstances, however,

[2] Notably there are the writings of Professor J. B. Clark which have occasioned Professor Frank H. Knight to remark: "More important, however, is the error of attributing any sort of moral significance to economic productivity. It is a physical, mechanical attribute, attaching to inanimate objects quite as properly as to persons, and to non-moral or even immoral as well as virtuous activities of the latter. The confusion of casuality with desert is an inexcusable blunder for which the bourgeois psychology of modern society is perhaps ultimately to blame through productivity theorists are not guiltless." *Risk, Uncertainty and Profit,* p. 179.

[3] For example, steps which help farm people to migrate from overcrowded sections to areas with better economic opportunities are of this type.

measures that are appropriate for achieving one of these goals will have adverse effects on the other. For instance, measures designed to bring about an optimum use of agricultural resources will under certain circumstances actually reduce the income of many farm people. It is at this juncture that "practical" policies become oriented toward the task of altering the rates of return paid for the service of agricultural resources in an endeavor to improve farm income. The result is, of course, that resources become misused. This is what has happened in the case of crop production control, farm commodity loans and storage, soil conservation, and marketing agreements. Here we have, then, the compounding of the two problems which makes it essential for us to establish, first of all, the basic conditions which underlie the dichotomy which has been laid down.

The necessary theoretical tools for analyzing the *resource* and the *income* problems are drawn from two wholly different sets of principles. The criteria for determining the best use of given resources are implicit in the principle of marginalism [4] while the criteria for ascertaining the "best" distribution of income are inherent in considerations of general welfare. The schemes of analysis which pertain to the first are fairly well developed. These tools have undergone much refinement and they provide us with some of the best instruments available for understanding and solving economic problems. Much less, however, has been done in developing an analytical framework for understanding the income problem, and the task of determining the claims of social justice. The institutional organization for doing one of these tasks has been predominantly private, whereas to do the other, it must of necessity be essentially public in nature. It is plain that in the United States the administrative machinery for getting resources into operation has been mainly a private function done on farms, in workshops, small businesses, and giant corporations. But it is not easy to conceive of administrative machinery designed to cope and act to improve the distribution of income which is not public in character. Underlying our institutional development is the widespread belief in the efficacy of private enterprise, which has of course greatly conditioned the development of the rules of business conduct and of legal and political institutions pertaining to production,

[4] "Economic theory is concerned only with the allocative aspect of economic behavior. Its entire argument comes under the single 'economic principle' that the total result is maximized through allocating means among alternative channels of use (each subject to a law of diminishing effectiveness) in such a way that equal increments of means yield equal increments of ends in all modes of use." Frank H. Knight in the *American Economic Review*, Vol. XXIV, June, 1934, p. 228.

trade, and commerce, while democracy, with its sharp accent on equality, has gradually moved to public action to lessen the inequality in income.

No one would deny the fact that within agriculture there are many families who earn wholly inadequate incomes measured by any reasonable criteria of welfare. Many farmers are poor people. Most of them are "little men and women" with few resources outside of their own labor to contribute to economic production. Professor J. D. Black, reviewing the agricultural situation of March, 1940, wrote:

> . . . the case is clear that the incomes of a large fraction of the farm population are distressingly low. Two-fifths of the non-relief farm families of the nation do not have incomes of $780 . . . in terms of urban dollars buying power . . . And within this limit are large blocks of farm people, in many places well concentrated, as in much of the South, who are living for the most part on incomes of less than half a thousand.[5]

Furthermore, given full employment for the economy generally and the prosperity that this would bring, there still will be many families in agriculture, as well as in other occupations, who will not earn enough to give them an adequate income. The point is simply this: the problem of distributing income which confronts modern society will be appreciably reduced but not solved by keeping the economic machine in full gear. Or, to take a more restricted view, even when all the kinks have been removed from agricultural production, thus reducing to a minimum production maladjustments, many of which are now of long standing, there will continue to exist within agriculture aspects of the problem involving the distribution of income. This is not to underestimate or distract from the importance of achieving and maintaining full employment with a high level of production.

2. *Productivity and income*

Why is it that most farmers and many farm leaders believe that the way to correct the low income of farm people is to make adjustments in production, in marketing, and in credit? The reason is simply this: There exists a deep-seated, genuine belief that a more efficient use of agricultural resources will in fact increase farm incomes, closely coupled with the conviction firmly held that each farm family should earn enough for its living. Here we have the dilemma which confronts government in formulating a rational economic policy; the situation is not

[5] *Review of Economic Statistics*, May, 1940, pp. 69–70; cf. also National Resources Committee Study, *Consumers Income in the United States*, 1938.

peculiar to agriculture, but is equally applicable to matters in labor, finance, and industry.

No one who is at all close to the daily thoughts of people can be unaware of their strong conviction that an individual or family should earn enough to provide an adequate income. This notion has long had general social sanction. It is deeply imbedded in our standards of values. It is out of this conviction that there has arisen the idea of a fair price, which, if it means anything, is simply that rate of payment which is sufficient to provide the recipient with an adequate income.[6] No one would be disposed to argue that this notion of a fair price is based on the criteria which are necessary to facilitate an optimum allocation of resources whether it arises in a case of wages, prices of non-farm products (page the old NRA!), or in interest rates. This is the matrix out of which was born the notion of parity price in agriculture. Parity price is a variation of the notion of a fair price, meaning simply a rate of return in terms of the price of cotton, wheat, corn, and tobacco which will provide farm families with an adequate income.[7] Who is there that would contend that parity prices have been formulated with a view to facilitate the best use of agricultural resources?

Because parity prices were designed primarily with an eye to adequate income rather than to an improvement in the use of resources within agriculture, it is of course easy to condemn them as misleading criteria on which to stake economic policy, as in fact they are. But to stop at this point is not enough. Account must be taken of the fact that fundamentally parity prices are merely a special case of the much larger class of so-called fair prices, which in turn are sanctioned in what is approved social conduct. Farmers and the pressure groups representing farmers are pressing their political case for what they consider fair prices, meaning thereby the right to "earn" an adequate income. To lose sight of this institutional background in appraising the policies that have been formulated by the government is to miss rather completely what is fundamental in any attempt to work out more rational agricultural programs. We simply must start with the fact that much of the basic legislation which has been formulated to promote the welfare of agricul-

[6] The notion of adequate income is probably best conceived as having both a subjective and objective phase. To the individual it is subjective with expectations rooted mainly in past standards of living while to a community it may be objectively ascertained in terms of nutrition, health, education, and other criteria of social welfare.

[7] Meaning enough income to maintain the standard of living to which they are accustomed, which is the subjective connotation.

ture reflects this deep-seated desire of farmers to earn an adequate income, and hopes, of course, that at the same time these measures will help correct the bad allocations of agricultural resources that exist.

Because it is repugnant to people's sense of right and wrong not to be able to earn one's way in terms of economic productivity, the resistance to any separation of the resource and income problems becomes quite understandable. Nevertheless, the fact remains that analytically the two problems must be kept separate; to treat them otherwise can only lead to confusion. Moreover, as long as the two objectives are linked in the formulation and promulgation of policies, the results of such policies will, in the main, be unsatisfactory. It is fairly evident already that schemes which do not make the separation are likely to do more harm in upsetting the use of resources than they could possibly contribute on the income side. Therefore, if a more rational approach is to be made in dealing with the affairs of agriculture it does become necessary to find ways and means of designing one set of programs which are directed to the problems of production, marketing and credit, and another set of programs which aim at supplementing the income of farm families deemed to be too low.[8]

[8] In terms of welfare criteria.

4

Income Accounting to Guide Production and Welfare

American agricultural policy shifted its center of gravity during World War II from production adjustments to prices, with parity the cornerstone on which all else rests. The Land Grant Colleges and Universities in their report on Postwar Agricultural Policy [1] avoided any discussion of parity despite the fact that national farm legislation has keyed both farm prices and income to a legal parity. It is folly to by-pass parity. Parity as an idea has great merit; it appeals to the public as fair and just. Parity as formulated by law cannot be defended either on economic or social grounds. This legal parity has become a major liability in American agricultural policy: it determines the loan rates of "basic" farm commodities, overvaluating decidedly cotton and wheat, as well as other farm products; it determines the level of support prices of farm products. Parity drives a wedge between America's internal and external prices of the leading farm products that enter export trade; and as a result, it gives rise to a two-price system, export dumping, and commodity agreements. As a consequence farmers who grow cotton and wheat soon acquire a vested interest in measures that are inimical to a liberal trade policy.[2]

The broad arch of American agricultural policy should rest on two columns—*production* and *welfare*, and parity should be reformulated and, if properly done, could become the keystone of this policy edifice. In production, the purpose should be that of achieving economy in the

[1] Cf. Theodore W. Schultz, "Postwar Agricultural Policy: A Review of the Land Grant Colleges Report," *Journal of Land and Public Utility Economics*, Vol. XXI, May, 1945.

[2] At the time the House of Representatives (on May 26, 1945) passed the extension of the Trade Agreements Program, Congressman Pace from Georgia offered an amendment seeking to safeguard the support prices in agriculture. For a fuller treatment of the serious inconsistency between agricultural policy and trade policy and its broader implications see Theodore W. Schultz, "Which Way Will Farmers Turn?" *Foreign Affairs*, July, 1945.

use of resources, the aim being allocative efficiency; in welfare, the aim should be upon a better distribution of income among persons in order to achieve greater social efficiency. As already indicated in Chapters 2 and 3, production geared to allocative efficiency, and welfare meshed into social efficiency have become two of the principal objectives of our political economy. They are more basic than any list of crops or of livestock products, more comprehensible and concrete than either capitalism or socialism, and certainly more meaningful than the popular slogans associated with private enterprise or 60 million jobs.

Agricultural production and the welfare of farm people are indeed fundamental matters of public concern. They are the pillars on which public policy affecting agriculture should be built. The main issues affecting policies to improve production and welfare are nevertheless far from settled.

In the belief that it is not only possible, but also necessary, to reconsider our price and income policies, and especially to reformulate the parity concept so that it will be meaningful and useful not only in economic analysis but primarily in guiding policy-making, let us examine the role of income and income accounting for agriculture.

In this chapter we shall do two things: (1) outline a double system of income accounting for agriculture designed to guide production and welfare policies; and (2) indicate briefly some of the uses of such accounting system for shaping and appraising agricultural policy.

Two types of parity will emerge, a parity for production and another parity for welfare. Each will have general standing, for the theory on which the two concepts and the income accounting procedures are based are as applicable and valid when applied to industry or to any other sector of the economy as to agriculture.

I The Functions of Income

Income performs two basic functions in the social economy; each has its purpose in policy, its underlying principles in analytical work, and its programs in public action. Each of these functions can be put quite simply:

1. *As incentives to resource owners* income affects the use to which resources are put in production; and

2. *As purchasing power in the hands of families* income affects the well-being of people.

This functional dichotomy is significant because it has its foundation

in the primary values that motivate people in our society. There is the desire to economize, to be efficient in the use of scarce resources—an organizing and coordinating value; and there is also the desire to enhance the social efficiency of a people. One of these functions is oriented toward production, the other toward welfare. The two are, of course inter-connected; but this fact has been stressed to the exclusion of the basic differences in purposes and in administrative techniques required to attain the respective objectives. Although economists have been all too prone to restrict their analyses to the first of these two functions, society has been unwilling to let income rest at that point. The rapid extension of progressive income taxation, social security benefits, public financing of education, highways, nutrition, housing, medical services, and facilities for recreation are all evidence of this growing public concern about the personal distribution of income including benefits provided on public account.

The inference is plain: it is not enough to examine production, price, and income solely from the point of view of *allocative efficiency*; income must also be studied as a means in the attainment of *social efficiency.*

To see the mainsprings of this matter in a larger political context, we must take cognizance of the fact that a democratic state is under obligations to improve (1) the allocative efficiency of the economy—this we have called the *resource problem*, and (2) the social efficiency of the people served by the economy—this we have referred to as the *income problem.*[3]

In agriculture, unfortunately, there is as yet no clear realization of the distinctive features of these two problems. Parity prices and parity income based on historical relationships as now formulated and defined by law have led many people into a blind alley. That road does not lead to either allocative or social efficiency but to malallocations and waste. What is more, the two problems have been badly mixed in policy-making for agriculture. Confusion both as to ends and means has been the result. It is high time that we ask ourselves the crucial question: What is it that we want to achieve? If it is a better use of resources, then let us choose means to serve that end. If it is to provide a better distribution of income, then let us select measures that are appropriate to that purpose. As far as one can tell, there has never been a serious

[3] Cf. Theodore W. Schultz, *Redirecting Farm Policy*, Macmillan, 1943. Also, D. Gale Johnson, "Contribution of Price Policy to the Income and Resource Problems in Agriculture," *Journal of Farm Economics*, Vol. XXVI, November, 1944; and his *Forward Prices for Agriculture*, University of Chicago Press, 1947.

attempt to look at policies systematically from the point of view of purpose in this context. One of the reasons for this failure has been the fact that we haven't had any measurements of the accomplishments of alternative policies and the attendant programs.

Income accounting of the type outlined in this chapter provides tools to resolve both the resource problem and the income problem. To do this it will be necessary, however, to establish two separate income accounts.

1. Income accounting for allocative efficiency

An ideal accounting system should tell us whether it would be possible to increase the total output by changing the use to which any resource is put. In applying this principle to agriculture the alternative uses of resources appear to fall into three broad classes: (1) within farms, (2) among farms, (3) between agriculture and the rest of the economy.

The principal economic concepts and theory that are required for developing statistics designed to measure income as incentive to resource owners are well known and fairly straightforward. The following major steps would be necessary:

1. Ascertain the amount of income "produced" in agriculture,
2. Allocate this income to each resource in accordance with its value productivity,
3. Calculate the rate of return realized by each resource, and
4. Compare the rates of return (a) within farms, (b) among farms, and (c) between farms and the rest of the economy.

The significant data in all this, concerning the allocative efficiency with regard to resources, are the rates of return. Comparisons of the rates of return would give us an indicator, a parity [4] that would be meaningful as a guide in policies designed to improve agricultural production. To illustrate, if the rate of return for human agents in farming is less than in other sectors of the economy, a *disparity* is deemed to exist (caused presumably by a malallocation of resources). It follows from this that the total output of the nation could be increased by the movement of labor resources out of agriculture into other occupations, in sufficient numbers to equalize the rate of returns for comparable labor imputs. If at the same time the rate of return for workers engaged in

[4] When $AR/ER = 1.0$, parity would exist (in a production context) with R as the rate of return, A the agricultural resource and E the equilibrium rate for comparable resources. As AR/ER fell below 1.0 a disparity adverse to the agricultural resource, and as it rose above 1.0, a disparity favorable to the agricultural resource, would prevail.

farming is higher in the Western States than in the Cotton Belt, a *disparity* exists (*AR/ER* is less than unity) among farms (in this case by regions). Here again a gain in national production may be achieved by labor moving out of the South into the West (and into non-agricultural occupations at the same time) until the rates of return are equalized.

This procedure of testing and determining the proper allocation of resources is, of course, also applicable to the production within farms (and fully as valid when applied to non-agricultural production). This "within farms" has been the sphere to which farm management studies have been devoted. We must also compare the rates of return for various capital forms such as land, buildings, fences, machinery, equipment and fertilizer, relative to the market rate for capital. The test is as valid here as it is in the case of labor resources.

The basic purpose of income accounting in this context should be clear and unmistakable: it is to measure the rate of return of each of the various resources employed. The task as here outlined is no easy one; it presents many very difficult problems of a statistical nature. Yet it can be done, at least by stages, from very rough approximations to more refined and dependable estimates as data and methods are forged.

We know even now from the essentially unplanned and unorganized statistics and from direct observations that the rates of returns for comparable resources are far from equal among farms in the same type of farming areas, among farms by regions, and between agriculture and the rest of the economy.[5] Any inequalities in the rates of return is a true measure of the inefficiency and waste that prevails and characterizes American agriculture.

One thing, accordingly, must be borne in mind always—the rates of return are the crucial indicators in achieving economy in the use of the nation's resources. They provide the measurement that is necessary, they make possible on the production side a meaningful and valid parity. Unlike the present legal price and income parities which have no economic content in an over-all supply-demand context, parity for production based on the rates of return, as herein outlined, would have meaning in economic analysis. This parity would be useful to policy makers and economists alike. Moreover, parity, based on rates of return, can be generalized; for the procedure for determining this parity is fully as applicable to secondary and tertiary industries as to primary production.

[5] Cf. Louis J. Ducoff, *Wages of Agricultural Labor in the United States*, U. S. Department of Agriculture, September, 1944, for its useful data and comparisons.

The indicator growing out of the proposed income accounting developed in this section may appropriately be called the *production parity.*

2. Income accounting for social efficiency

Here, too, it is well to start by formulating the guiding principle. It may be put thus: The ideal accounting system for this purpose should indicate whether it is possible to improve the social efficiency of a people by changing the personal distribution and use of incomes. In focusing upon agriculture the alternatives with respect to the personal distribution and use of income may be grouped along the following lines: (1) among farm families, and (2) between farm and non-farm families.

The necessary concepts and the theory for doing this kind of income accounting have not been fully developed. Fearful of making interpersonal comparisons of utilities, economists have been led to an all too narrow formulation of the foundations of welfare economics. It is not enough to study merely those situations where it is possible to make "some people better off without making anybody worse off." [6]

It might well be contended, however, that even this restricted formulation opens the door to important advances in social policy. Any measures which would increase the efficiency in the way resources are used would provide a larger total product and thus make possible the distribution of more income to the less privileged in society, be it in terms of food, medical facilities, housing, clothing, or in terms of income payments. Certainly when we view the very considerable losses in productivity associated with the trade cycle and as we come to realize the serious malallocation of resources in a competitive sector of the economy like agriculture, one is impressed by the very considerable gains to be had by increasing the total output of the economy and thereby paving the way for improving the lot of some people considerably without making anybody worse off. Two observations are called for at this point: (1) This formulation of welfare economics is essentially a part of what we have been discussing under allocative efficiency and can properly be included under it; (2) the redistribution of income and its use must be approached in terms of the values of society, and basically they are the values expressed by citizens in the political claims and counter claims that occur in the formulation of policy in a democratic state.

[6] N. Kaldor, "Welfare Propositions in Economics," *Economic Journal*, Vol. XLIX, September, 1939.

As a political issue welfare "constitutes a criterion of value which overrides such facts as a loss of satisfaction to individuals. The landlords who were injured by the repeal of the Corn Laws were not only individuals enjoying definite satisfactions. They were also members of an economy; as such only could they exercise any preferences." [7] The progressive income taxation illustrates this point.

Mr. A. L. Macfie in his book *Economic Efficiency and Social Welfare* has presented the argument for the broader formulation of welfare in these words, "the individual's right to any level of satisfaction is created by, guaranteed by, and developed by the community—a community of social individuals. . . . The sanction of progressive taxation is ethical. . . . The appeal to what is right and just is sanction enough for progressive taxation." [8]

Without probing further at this time the analytical foundations for welfare, a system of income accounting designed to measure how incomes affect the social efficiency of farm people, would appear to require the following steps:

1. Ascertain the amount of income "received" by farm families,
2. Determine the personal distribution of this income by families,
3. Calculate the purchasing power of the income realized by families (in terms of acquiring—by means of purchases in markets and through public services—the essentials for social efficiency including nutritious food, education, housing, clothing, free time, and the attendant goods and services),
4. Compare the realized incomes (a) among farm families, and (b) between farm and non-farm families.

Here again, the significant data that emerge from this kind of income accounting concerning social efficiency and the personal distribution and use of income lie in the comparisons of realized incomes. The goal, however, would not be that of achieving equality in realized incomes measured in terms of purchasing power for goods and services (including those available on public account) essential to social efficiency. The bench mark would be different from the production side in this respect: in the efforts of our society to improve welfare, minimum standards have become the first objective.[9] These minimum standards must, there-

[7] A. L. Macfie, *Economic Efficiency and Social Welfare*, Oxford University Press, 1943, p. 31.

[8] Op. cit., pp. 31–32.

[9] A second objective, more comprehensive in its scope and in its significance in economic analysis, is to equate "investments" in human agents so as to maximize the expected aggregate productivity of a people. This objective would require going much

fore, be translated into incomes. It follows that whenever families with realized incomes too small to permit them, within the cultural and market complex in which they are situated, to obtain the necessary goods and services to satisfy these minimum standards a welfare *disparity* is deemed to exist.

Again it should be noted that a parity [10] based on this kind of a comparison (of income realized and minimum standards) is fully as valid when applied to non-farm families as it is for farm families.

Income accounting on the pattern outlined in this section will provide the data for an indicator that may well be called the *welfare parity.*

These two approaches separate sharply the function of income as incentives to resource owners in which the test is allocative efficiency from the function of income as purchasing power available to families with which to acquire necessary goods and services to permit them as people to be socially efficient.

II Applications to Policy

The utility of these two systems of income accounting should be fairly obvious. They go to the heart of some of the more vexing, unsettled problems arising in American agricultural policy. These income accounts would point the way as to what should be done about parity. They also would provide an answer to the question: Can parity be given a solid economic foundation?

On the side of agricultural production the proposed indicators would give significant clues with regard to the efficiency with which resources are allocated within farms, among farms, and between agriculture and the rest of the economy. We can anticipate some of the disparities that would become evident.

Under non-war conditions, for some time to come, we are likely to have a very considerable disparity adverse to labor resources engaged in most parts of American agriculture, especially in the South. If our proposed income accounting were to confirm this expectation, what implication would this fact have to policy? Does it mean that prices of

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further in increasing the public "investments" in people than that specified by so-called minimum standards. This formulation of welfare, converting social efficiency back into the essentials for productivity, casts the problem so that one can apply marginal analysis in its solution.

[10] When $RFI/NFI = 1.0$, parity (in a welfare context) would exist—with *RFI* as the realized family income and with *NFI* the necessary family income to acquire the minimum standards. Most families in periods of high employment would presumably show a parity higher than unity.

farm products should be increased? Obviously, that is not the remedy, for to raise the price of cotton will neither solve the poverty of the South nor induce an efficient use of resources.

The policy implications are really very straightforward. In a secular context agriculture is burdened with an excess supply of labor. Certainly the rapid advances in farm technology, largely labor saving in their effects, is a factor. So is the high natural increase of the farm population. More basic, however, is the fact that for a long time (as a consequence of industrialization and the low income elasticity of farm products), the growth of the supply of farm products has been more rapid than the demand. It should be the objective of policy, therefore, to improve the distribution of the nation's labor force and to accomplish this it is necessary to reduce the excess supply of labor in agriculture to a point where rates of return for human effort would be equal to that in other occupations.

In the case of capital we are likely to find that the rates of return in farming, again particularly in parts of the South, are considerably higher than the market rate for capital. The policy implications are plain—more capital in the form of farm machinery, equipment, and soil resources is needed in those parts of agriculture. Measures, therefore, should be undertaken which will increase the amount of capital employed in farming. The main barriers are, however, deep-seated. Many farm families with little or no equity are confronted with much price and yield uncertainty and are subject to capital rationing. It is no easy matter to correct the adverse effects of this situation.

In the case of welfare considerations, it is a serious mistake to proceed on the assumption that all farm families receive incomes that are too small to permit them to enjoy a high or even a moderate level of living. It is also a mistake to assume that because the price of wheat or of cotton is low that, therefore, all families engaged in producing these products receive low incomes. On the welfare side we might expect our income accounts to show that most farm families in the Corn Belt, in the milk sheds, and in several other areas receive incomes as high as, and higher than, the majority of the families in the non-agricultural sectors of the economy.

Nevertheless, agriculture is likely to have, under conditions of high production and employment, more than a proportionate share of the nation's families who do not receive enough income to provide for themselves the essentials for social efficiency. Does the remedy lie in higher farm prices, acreage allotments to reduce crop acreages, com-

modity loans, support prices, and parity payments of pre-war vintage? The answer is, of course, that none of these measures is appropriate for improving the social efficiency of farm people. Whereas such programs may or may not contribute to a better use of resources in agricultural production, they definitely are not suitable for improving the personal distribution and use of income.

When these two types of income measurements have been established we will find that there are some policies which will improve both *production* and the income distribution aspects of *welfare*: The following meaures fall into this group, namely, policies that (1) reduce the excess supply of labor in agriculture, (2) lessen the capital rationing in agriculture, (3) enlarge small inefficient farms, (4) lessen the price and yield uncertainties confronting farmers, and (5) increase public investments in human agents. Personal income taxation, the extension of old age and survivor's benefits to farm people and income payments to farm families that are progressive in their effects are likely to improve the personal distribution and use of income without worsening the allocation of resources. There are also policies that would improve allocative efficiency on the resource side without worsening the personal distribution and use of income; for example, most of the technical researches of the Department of Agriculture and the State Agricultural Experiment Stations fall into this group. Then there is a third group, including several of the major agricultural policies which this country has been pursuing, which instead of improving, actually worsen both the allocative efficiency and the social efficiency of the American economy; these are: (1) the maintenance of farm product and resource prices either above or below their equilibrium value—this is bound to happen when support prices for farm products are determined according to the legal parity, when the Commodity Credit Corporation makes loans based on prevailing legal parity; (2) income payments to farmers based on size of farm, on a corn, wheat, cotton or tobacco acreage allotment or on some other measure of the productive capacity of the farm; (3) barriers that keep the excess supply of labor from leaving agriculture; (4) the sub-division of the existing, already too small, farms into smaller, more nearly "subsistence" farms; and (5) an increase rather than a decrease of the prevailing price and yield uncertainties in agriculture.

Understanding and constructive criticism of policies designed to promote production and welfare will be deepened and sharpened when our agricultural income accounting system is recast along lines outlined in this chapter.

5

The Family Farm

THE FAMILY FARM is one of those features of American agriculture that everybody values highly and wants to see maintained. It should not be replaced by corporation farms or by some other type of organization such as the cooperative or collective, so it is generally held. Ask city or town people, business or labor representatives, spokesmen for church organizations or of political groups of any hue—what should our policy be with regard to the family farm? The answer is well-nigh unanimous: Maintain and strengthen the family farm because it stands for values that we want to preserve in our national life.[1]

The family farm as a policy objective, however, is on a different footing from that of resources and income already considered in earlier chapters. The family farm for our purposes is a socio-economic institution that has been supported by certain basic values in our national community, and it has been made an important part of the structure of American agriculture. But like other institutions of economic import it is far from being an ultimate end; instead, it is an operating unity in production, savings and consumption, and it must be viewed and evaluated on the basis of what it accomplishes. The implication is clear, the family farm is not an end of agricultural policy. Rather it is a means, and as such we want to know how useful it has been and can become, and what are its advantages and shortcomings.

We must realize, however, that the concept of the family farm has been vague and ambiguous to say the least. There has been much meandering

[1] This chapter is based largely on a statement that the author prepared for Committee I of the Farm Tenure Conference held at the University of Chicago in February, 1946. The report of that committee was included in *Family Farm Policy* edited by Joseph Ackerman and Marshall Harris, Chicago: University of Chicago Press, 1947. The committee consisted of the author as Chairman; Henry C. Taylor, Vice-Chairman; George H. Aull, Secretary; and J. E. Booth; Lippert S. Ellis; J. I. Falconer; V. Webster Johnson; John Muehlbeier; and Anne Taylor. Although I have revised considerably my earlier statement, there is no doubt that I have benefited greatly from the criticisms of my colleagues who served on this committee with me. Let me stress, however, that they are not in any way committed to what I say here.

over the years in public effort intended to give support to it. At times it has been mixed with other aims, weakened by inconsistencies and thwarted by obstacles. Yet, despite difficulties, the American social structure has accommodated the family farm; and a conscious effort has been made to develop a modern agricultural technology to meet its requirements.

I The Family Farm as Policy Objective

The basic assumption underlying this analysis of the family farm is as follows: One of the purposes of agricultural policy in the United States is to strengthen and support the family farms, not as an end but as one of the basic institutions in rural life. In this context, how are we to define the family farm? This obviously is a moot question on which there are many ideas. The way to achieve a workable definition is to examine the technical, political, social, and economic characteristics of the family farm and tie the definition to those characteristics which appear to be most important to its success. On the technical side, it is fairly evident that modern techniques and practices in farming are not restricted narrowly to any particular form of farm organization whether corporative, partnership, cooperative, or individual entrepreneurship vested in the farm family. It also is true that existing political and legal institutions are sufficiently flexible to accommodate alternative forms of organization and from this it would follow that the salient features of the family farm are not to be found in this sphere. Because of the freedom of choice that exists in the technical and political-legal spheres, we turn to the social and economic characteristics of the family farm for a definition.

In economic analysis the farm, regardless of the type of organization that exists, is a firm.[2] As such it is a decision-making unit in production, vested with the entrepreneurial function which involves the organization and management of the farm combining land (nature), labor and capital and taking certain economic risks in the process. It may be useful to indicate briefly some of the things that this conception of the family farm (as a firm in production) does not necessarily imply. It does not, for one, carry with it the implication that the farm family must *own* all the property (land and capital) and *provide* at all times all the labor that is employed on the farm. Nor does it mean that the size of the farm must necessarily expand and shrink with the family cycle.

[2] See Theodore W. Schultz, "Theory of the Firm in Farm Management Research," *Journal of Farm Economics*, Vol. XXI, August, 1939.

There can be no family farm unless the entrepreneurial function resides in the farm family. This is the first and most essential characteristic, but it is not sufficient. In addition, the farm should consist of enough land and capital to absorb efficiently the labor of such members of the farm family as may depend upon it for a livelihood; and conversely, it should consist of no more land and capital than can be regularly operated by the farm family *or* by a family of *normal size* in the community.[3] Accordingly, employer-employee relationships are not a characteristic of the family farm, although the family farm may draw upon additional (outside) labor during peak seasons and during the period when the family is in process of reaching its "normal" size.

As already indicated, there are no convincing reasons for specifying that all the capital required to operate the farm should be furnished by the family. Nor is it necessary that a family farm be self-sufficient in the goods and services consumed in the farm household, or even in most of the food, fuel, and fiber that the farm family uses. A degree of dependency upon markets is necessary if the farm family is to share in the gains to be had from the division of labor that characterizes our economy. But our definition does not specify the extent of this dependency. The family farm is not dependent upon any particular inheritance customs. While certain customs and legal institutions with regard to the inheritance of farm property strengthen the essential features of the family farm, they are not a necessary part of it. Neither is it necessary for the business of a family farm to be handled through a particular kind of purchasing and selling agency.

There has been a tendency to define the family farm in terms of acres by starting with the query: How large is a family farm? Is 40 acres too small or 400 acres too large? Size in terms of given number of acres is not an essential characteristic of a family farm. Our definition may include a 10,000-acre livestock ranch as well as a 3-acre flower-growing enterprise. Nor is a given amount of equipment a necessary condition. Under the conditions specified in the above definition it is not necessary for a family farm to stay out of the capital market; it may borrow and it may lend funds to others. It may rent property from or to others. How capital resources are obtained does not determine whether the operating unit is a family farm, provided that the family maintains the essentials of entrepreneurship. Furthermore, a family farm is not de-

[3] This point might be made clearer thus: The family farm should not find it necessary to employ (except during peak seasons) more labor than is available in the family of "normal" size in the area.

pendent upon any particular crops or livestock, or combination of these. It is not restricted to a given crop rotation or to a certain system of farming. The fact that the soil is being maintained, built up, or depleted by the farming operations in no wise determines whether it is a family farm.

The definition which we have tried to establish envisonages a *family farm* consisting of the following characteristics:

1. The entrepreneurial functions vested in the farm family.

2. The human effort required to operate the farm provided by the farm family with the addition of such supplementary labor as may be necessary, either for seasonal peak loads *or* during the developmental and transitional stages in the family itself. (The amount of such regular outside labor should not provide a total labor force in excess of that to be found in the family of "normal" size in the community. This assumes that the labor force of a family will provide the optimum scale of farm operations, an assumption that must always be put to test.)

3. A farm large enough (in terms of land, capital, modern technology, and other resources) to use "efficiently" the efforts of those members of the family who are employed on the farm.[4]

This definition of a family farm would exclude practically all croppers and certain tenants and some farms operating under contract agreements which impair the essentials of entrepreneurship. Most cropper families and some tenants work essentially as farm laborers. Plantations and other types of farm organizations dependent almost wholly upon hired labor are not family farms. Many part-time and resident farms which have become fairly numerous in this country are also excluded.

Many farming units commonly thought of as family farms lack some of the characteristics which we have ascribed to them. These may be thought of as quasi-family farms. For example, there were in the United States in 1940, 5,550,000 farms exclusive of sharecroppers. Of these 1.4 per cent were large non-family farms including plantations; 10.4 per cent were so-called resident farms; and 11.2 per cent, part-time farms. Of the remaining 4,275,000 farms, 1,150,000 reported products valued at less than $600 and were so low in productivity that by no stretch of the imagination could it be said that they were efficient in employing

[4] The labor resources of a family farm are deemed to be employed efficiently when the rewards for their efforts are equal to rewards for comparable human efforts in other occupations in the economy. Rewards in this context are in real terms in contrast to monetary rewards and include the value that members of the farm family place on leisure, working close to nature, "independence" and other non-monetary values ascribed by them to farming.

the labor resources of the family. Thus, as of 1940 there were in this country 3,125,000 farms which *might* be classified as family farms. It is doubtful, however, whether farms falling below $1,200, or even $1,500, in value of product (at 1939 prices) were "efficient" in the use of the labor force of the farm family. This criterion would eliminate from the family, farm classification about half of the 3,125,000 units. Of those remaining some were dependent upon too much outside labor to meet the specifications of this definition and some were operating under circumstances that impaired their entrepreneurial function. Thus, it is fairly evident, even from these fragmentary data, that only a fraction of the farms in the United States meet fully the specifications which we have laid down for a family farm.

II Preliminary Appraisal of the Family Farm

With the definition which we have formulated at hand, it is possible to indicate in broad outlines the significance attached to the family farm and to evaluate its performance as a basic institution in American agriculture. It should be clear and yet to be sure let us repeat—we do not look upon the family farm as an end of agricultural policy. We have conceived of it as an instrument through which agriculture and rural life can be made a rich and satisfying experience for those who farm and by means of which agricultural production can be carried on efficiently.

1. In its economic setting

Does the family farm permit an efficient firm in the allocation and use of resources? The question of scale arises, command over resources, ability to organize and manage the resources as a going concern, and the capacity to bear risk and uncertainty. Can the family farm acquire and employ new technology that requires much additional capital and the movement of many people out of farming? Is soil conservation compatible with the family farm? Can the family farm function successfully in areas where climatic risks are great and yield hazards are large? Can it perform the storage function necessary to stabilize the gigantic livestock industry of the United States dependent as it is upon a widely varying feed supply from year to year? With the uncertainties that characterize farm prices, can the family farm make reasonably efficient production plans from year to year? Can it adjust these plans rapidly to meet rapidly changing conditions? Can it do these things as well or better than farms organized as corporations, plantations, cooperatives.

or some other alternative form. These are the principal economic issues that arise on the side of production.

The family farm is also a household. Here we need to ask ourselves, does it perform satisfactorily on the side of consumption in acquiring and in using the goods and services needed to satisfy the wants of the farm family? Is the household (consumption unit) weakened or strengthened by its close link with the farm (production unit)? Does this close association tend to build up production resources at the expense of family living and welfare? Does it encourage depletion of resources as a means to maintain family living?

The appraisal that follows is far from definitive; on the contrary, so little has been done in this sphere that the following remarks are of necessity quite tentative in character.

SCALE. A family farm meeting the requirement of our definition would probably not preclude a scale of operation at or near the "lowest cost per unit" point for most types of farming in the United States. The exceptions would probably arise in some types of fruit, vegetable and grain farming. The production of livestock products, however, seems to require, in nearly all cases, a scale of operation that is especially suited to the family farm.

CAPITAL RATIONING. Many family farms appear to be unable to obtain as much capital as is needed to establish a farm of optimum size. The result is that they are compelled to employ too much labor relative to the amount of capital that they use, and the returns per unit of labor are depressed accordingly. Although this condition is not peculiar to family farms, it does constitute more of a problem for them than for other types of farm organizations. A "surplus" of labor relative to capital makes for an inefficient combination of the factors of production.

RESEARCH. If agriculture is to stay abreast and progress, both fundamental and applied research are necessary. Yet certainly in the United States, no one would contend that the family farm must be an operating unit large enough to be capable of doing organized research in technical, economic or social fields. A business corporation may and frequently does establish its own research department. Competition is often sufficiently imperfect in business to permit a corporation to benefit from its researches in its own price and production policies. But a family farm is too small to engage in organized research and too competitive to affect the price of a farm product by introducing or withholding a new technique. The state Agricultural Experiment Stations and certain branches of the Department of Agriculture are staffed, equipped and

organized to serve the research needs of agriculture. This is particularly fortunate for the family farm since, if compelled to do its own research, it would be at a distinct disadvantage relative to larger and better financed production units. Here we have an excellent illustration of how public institutions can be created to complement a small firm and do for it a job it is incapable of doing itself. Thus through publicly supported research and extension education the position of the family farm has been greatly strengthened. Indeed, it is difficult to imagine how the family farm could survive without this assistance and support.

SOIL CONSERVATION. The family farm is not incompatible with soil conservation, but frequently the capital resources available to it are so meager that the maintenance of soil resources is almost impossible except at the expense of farm family living. The remedy for this situation is not easy but must be found if the family farm is to hold its own in competition with large-scale corporation farms with more capital resources.

YIELD HAZARDS. In areas where farming is severely burdened by climatic risk the family farm has been under severe stresses and strains. Unless some of this risk and uncertainty can be pooled under government administration, it is not at all clear that a farm family can provide the necessary capital and establish and manage the type of enterprise that may be required to operate successfully in areas where crop failures are frequent.

EXCESS OF LABOR. Most of America's agriculture for most of the time has employed altogether too much labor and many farm people have been working, often long hours and hard, on jobs having a very low economic productivity. Only in periods of very high employment in industry has there been a marked improvement, and even then in the more isolated farming areas there has not been enough productive work for those who remained on the farm. The family farm, as a going concern, seems to be particularly subject to this kind of problem since its labor is for the most part *in the family* and cannot be readily adjusted to changes in the demand and supply of agricultural products. The remedy does not appear to lie in alternative forms of farm organizations but in measures to enlarge the opportunities for non-agricultural employment for farm labor.

PROPENSITY TO SAVE. The rate of saving of farm people appears to be much greater than that of other occupational groups with similar levels of income. This is particularly true in the case of family farms. The close link between the farm and the home, limited capital resources,

the large measure of uncertainty, and the vast export of capital associated with members of farm families leaving agriculture increase the risk adversion and the cost of obtaining capital and therefore are among the probable causes. No doubt this high rate of saving has adverse effects on family living, and to this extent it must be viewed as a problem for which some solution should be found in the interest of higher living standards for the members of family farms.

FLEXIBILITY. Production in agriculture is more stable than production in industry. Likewise, production on family farms is more stable than production on non-family farms. The family farm is probably somewhat less flexible in adjusting itself to rapidly changing economic conditions. This inflexibility is, however, a major asset to the national economy, especially in times of depression. We need merely pose the question: What would happen if farmers were to vary the production of food as much from one year to the next as industry varies its output during a business cycle? Or, to put it differently, what would be the result if other industries could somehow manage to maintain production and employment on as stable a level as is characteristic of agriculture?

Another characteristic of many farm families is their apparent willingness to produce at the expense of their standard of living. This "ability" of farm families to continue to farm "below the margin" puts a severe strain upon family living and retards essential readjustments in agriculture. Another difficulty arises from the fact that the farm home is an integral and important part of the farm business and is more so on family than on non-family farms. In the case of the family farms the farm is both a place to live and a place to produce. The result is that the investment in real estate on family farms is frequently out of proportion to its productive value.

2. In its social setting

We shall consider briefly the social advantages and shortcomings of families on family farms compared to families where agriculture is organized along different lines and also to families in other occupational groups. Does the family farm provide for its members well-balanced social experiences in relation to society, to the community in which the family is situated, and within the family? Does it give its members security, free time, adequate education, rich cultural experiences, health, and a broad social horizon? How does it compare in these respects with farms organized along other lines? In probing these questions we are

confronted by many difficulties because of the many forces that shape the wants and values of farm people and that limit the activities of the members of the farm family.

Even under the most favorable circumstances certain major difficulties arise as a farm is transferred from one generation to the next. As yet all too little is known about this phase of the family cycle and how it affects families on family farms as compared, for example, with families on corporate farms and plantations. Is the typical family on a family farm more or less successful than families under other types of farm organization in transferring the physical assets that make the farm a going concern from one generation to the next without seriously disturbing production, the value of the assets, and the security and well-being of the people involved? More important, however, in the family cycle is the question of whether the children on a family farm, whose efforts are not needed in agriculture or who do not desire to farm, can find employment elsewhere and with as little frustration as the children from other kinds of homes.

We now turn to the difficult task of appraisal. Again, here, as in the economic sphere, it must suffice merely to indicate the nature of the analysis that is required rather than give answers.

SOCIAL STRUCTURE. Where the family farm is the prevailing unit, differences in socio-economic *status* are less than elsewhere and community solidarity is a noteworthy characteristic. An agricultural society based upon the family farm is relatively efficient in the assignment of *roles* to its members. It offers certain advantages in the development of personality and of individual initiative and responsibility. Because of the diverse nature of activities and responsibilities on most family farms, no other form of farm organization provides greater opportunities for the development of individual skills and abilities.

All members of the farm family usually perform some task involving manual labor and thus generally develop respect for workers in all walks of life. They also place a high value on owning property, and they know what is involved in management and the meaning of risk bearing. They often identify themselves with the management and capitalistic groups in urban society. It is fair to say that the various views and values which characterize industrial workers, capitalists, and managers may be combined to a degree in a single farm family. This is a unique and significant fact and helps to explain the persistent public devotion to the family farm.

In some of the non-material aspects of living the family farm is be-

lieved to give its members more satisfactions than other forms of farm organization. Studies of suicide rates and the incidence of certain functional types of mental disease throw some light upon various types of non-material aspects of the level of living. The available evidence indicates that farming areas characterized by family farms have greater solidarity than do areas where corporate or other types of organization predominate.

EDUCATION. Farm people in general are at a considerable disadvantage in opportunities for education. This is a problem by no means peculiar to the family farm. The causes are many. Among them must be put the attitude of farm people, one partly of indifference and partly of unawareness with regard to the state of education in farming communities. The family farm has played an important role in the democratization of our schools, including the extension of the Land-Grant system into adult education for farm people.

LEISURE. Because of the seasonal nature of much of agriculture and because many farmers are not "efficient" in the use of time and resources, the members of farm families frequently have much involuntary "free time" on their hands. Since such free time is not of their choosing, it is not equivalent to leisure. As a matter of fact, in most farming areas the workers engaged in agriculture have had less time and fewer facilities for recreation and leisure than are available to workers in non-agricultural groups. The family farm is no exception.

HEALTH. The health records growing out of the World War II draft indicate that farm people everywhere have been losing ground relative to non-farm people with regard to health. This failure to stay abreast is not an indictment of agriculture nor of the family farm. Instead the inference is that unless additional institutional provisions are made to meet the medical care and nutritional needs of farm people they may continue to lose ground relative to other groups.

MUCH INSECURITY. Although marked advances have been made in recent years in extending social security benefits to industrial workers, farm people have not participated in such extensions. While the members of a family farm as herein defined would enjoy a large measure of security, farm families as we find them are for the most part exceedingly insecure. This insecurity has its roots in backward tenure systems, inadequate resources, climatic hazards, and price and income uncertainties.

LEADERSHIP. There can be no doubt that many of the present-day leaders in business, industry, government and the professions have come from farm homes. On the other hand, the evidence does not show that

farm homes have supplied their proportionate share of these leaders and is even less convincing as to the role of the family farm in this respect. This is a matter which is deserving of the most careful consideration if the family farm is to continue to receive major emphasis in agricultural policy and if it is to merit the interest and support of other groups in society.

INHERITANCE PROCEDURES. In going from one generation to the next, as the farm family completes a cycle, how does it transfer the physical assets to the next generation? Are the going concern values of the farm generally preserved or are the losses very considerable? Little has as yet been done to ascertain the facts on this point. It appears that by and large the losses are very substantial, that the record is a bad one, and that much new ground will have to be broken in terms of education and new institutions in order to improve the performance of the farm family in this sphere. Here again, however, there is no basic reason why the family farm shouldn't complete the cycle without these losses and with as much dispatch as other forms of organization.

FRUSTRATIONS. The question may be raised as to whether the boy or girl who reaches maturity on a family farm and who is required to move —either to another farm or into another occupation—encounters more or less frustration in making the change than the boy or girl from another kind of home. The answer, perhaps, is not known but may be found in a more thorough study of father-son relationships and of alternative economic opportunities open to farm people in general. Frustration, of course, may result from the lack of opportunity to leave the farm as well as from inability to remain on it.

SOCIAL SEGMENTATION. An element of strength in the family farm may, in fact, constitute one of its important weaknesses. Certainly the closeness of its family ties and the degree of independence which it enjoys are not conducive to active cooperation in matters which do not directly and immediately concern it. Thus it may well be that the serenity and security which traditionally go with the family farm are such as to cool the enthusiasms of its members toward questions of policy affecting the broad interests of society as a whole. On the other hand, a certain amount of restraint is frequently desirable even with respect to the most essential reforms.

3. In its political setting

There is need to study the political attitudes, values and behavior of the members of the family farm. This raises such basic matters as polit-

ical power and political philosophy and how they influence and are influenced by the family farm. The family farm in and of itself has very little economic or political power. Those who view the decentralization of power as the necessary safeguard of liberty attach fundamental importance to this fact. Yet agriculture, consisting of family farms, may be united into large and effective interest groups that wield much economic and political power. When this occurs, under what conditions does the general interest prevail as against the special interest of the particular group of farmers? Do family farms impart to their members a social outlook that puts reliance upon democratic procedures over and above that afforded by farms operated under other circumstances? We need to face frankly the fact that the family farm is not *per se* full protection against non-democratic ideologies. We can ask, only, does it provide better protection than other farms, and if so, is this a factor to be considered in shaping agricultural policy?

There are also the more immediate political problems that arise as a consequence of the rapid change occurring in the structure of our society as we become less agricultural and more industrial. Does this change increase or diminish the responsibility of the family farm as a significant institution in modern society? Do farm people, and especially farm leaders, have the experience and the outlook necessary to understand the many new problems that are inherent in an industrial-urban society? Does the form of tenure under which land is operated make a difference in the political attitudes and outlook of farm people? These problems are sharply focused in connection with the role of organized labor and management and of government in our society. What is the place of agriculture, and of the family farm in particular, with respect to these issues?

BALANCED VIEWS. An agriculture in which family farms predominate is characterized by many relatively small and independent units. For all practical purposes, none of these units, acting alone, has any power over prices which will be paid for the factors of production or received for the products sold. In this sense the economic administration of resources in agriculture is highly decentralized and comes close to fitting the postulates of classical economists. Such a decentralization of economic power, it is still generally believed, is a necessary safeguard of the civil liberties of a people. Then, too, in a society where the increasing division of labor and of functions has brought about a sharp separation of capital, labor and management, agriculture with its family farms is in a unique position to balance out the social and political conflicts between labor, manage-

ment and capital for the simple reason that farm people are entrepreneurs, capitalists and laborers all in one.

There is much to be said for the thesis that members of the family farm are not as specialized in their political and economic experiences as is the case of most people in our industrial-urban economy. This fact alone may well be the primary reason why the prevailing attitudes and values, over the years, have been favorable to the family farm as a policy goal.

Although farm people do not have the particular biases usually ascribed to those who specialize as capitalists, managers or laborers, it does not necessarily follow that they are more ready to put the general interest above their own. As farmers become organized into commodity and general farm organizations, it is clear that very restricted purposes often predominate, purposes frequently incompatible with the general interest of society.

ON MONOPOLY. The record of the members of family farms as citizens with regard to economic monopoly has been strikingly "good," except again when their own organizations have attained elements of monopoly power as, for example, is the case in many of the milk sheds, in some cooperatives, and in certain governmental agencies acting in behalf of farmers.

IN FISCAL-MONETARY MATTERS. The members of the family farm, as citizens, have done very well, also, in focusing upon the importance of keeping the value of money constant. In their political activity they have generally held that it is the function of government to stabilize the general level of prices. But there has been a regrettable retreat from this grand position in recent years as farm organizations and others have stressed the necessity of keeping the prices of partitcular farm products at specified levels.

ON INDUSTRIAL-URBAN ISSUES. The United States is becoming increasingly industrial and urban in its economic and social structure. This development has brought with it many new and difficult public problems, and farm people as citizens are faced with the necessity of acting politically with regard to them. Members of a farm family are peculiarly isolated when it comes to an informed awareness of the difficulties inherent in the industrial-urban development.

DEMOCRATIC VALUES. The values underlying a political democracy are far up on the scale of ultimate values. They are sufficiently fundamental in nature to encompass and penetrate the family farm. The family farm, however, is also an instrument of democracy although not *per se* demo-

cratic, and studies show that in areas where it predominates there is more widespread and active participation in community affairs and greater support for established institutions and policies. From this we might properly infer that policies and programs designed to strengthen the family farm will serve likewise to strengthen government and to stabilize the political and social institutions through which it operates.

The results of this chapter may be summarized as follows:

1. The family farm has been defined as a socio-economic institution vested with entrepreneurship, supplying most of the human effort required to operate the farm, and situated on a farm large enough to use efficiently the effort of those members of the family who are employed on the farm.

2. The family farm in practice has demonstrated that it has certain advantages over other types of farm organization in each of three spheres —the economic, social, and political. Some of these advantages may be given added strength by appropriate complementary institutions.

3. The family farm also has a number of disadvantages some of which are inherent in the very structure of a system of agriculture based on the family farm. A few of these weaknesses have received public attention and measures have been taken to overcome them. The institutionalization of research for agriculture is a notable case in point. Most of them, however, have not been specifically identified, and until that has been done little if anything can be accomplished in overcoming the several weaknesses.

6

Policy Elements in Public Grazing Land

THE ENDS AND MEANS of policy appropriate for public grazing land are not as simple as the benzene ring or the Mendelian proportions. Social relationships in our modern, highly interdependent society make a strictly physical or biological problem appear simple by contrast. The study by Jack E. Holmes, *The Public Land Question in New Mexico,* University of New Mexico, July, 1947, makes it clear that policy for land in New Mexico under existing conditions is an exceedingly complex affair.

Despite these complexities it is always easy for some to jump to a conclusion, especially if there exists a vested interest, whether it be political or financial, in the outcome. But to think one's way through to a conclusion, examining the major alternatives on the way, calls for tough-mindedness. The task is so hard that few indeed are prepared to undertake it.

The serious student of land policy will be indebted to Mr. Holmes for his exploratory inquiry. It carefully sets the stage for further analytical work. It avoids the common pitfalls that beset studies of this type. The principal policy issues are avowedly controversial—when weighed on our political scales obviously highly controversial. Recourse to fact-finding, to the amassing of figures and still more figures and letting the facts speak for themselves is a standard expediency; but it avoids the problem of values and beliefs that enter into policy-making. Fortunately, however, Mr. Holmes does not try to escape the problem by going on a mere fact-finding expedition. Instead he is properly concerned with the relevant social objectives. His values and beliefs are made explicit. He approaches land use in a comprehensive means-end schema—a formulation that is meaningful and likely to lead to fruitful results. But he leaves off too soon and only mentions, without attempting to settle them, some of the following economic issues:

1. What scale of operation in grazing land is consistent with economic efficiency? The goal of a family farm or ranch as the basic unit in agriculture may be accepted. The family unit is traditional, and nearly all who think, write, and speak of it make their justification for the fact and the concept, out of the predominant values of our time. We need, however, to know how close a family unit farm or ranch comes to being efficient in the scale of its operations. The family unit ranch, even if small, may be productive enough of worth-while individuals and social stability, but its scale of operations may be so small as to be economically costly. If many, or the typical, units are too small for their best economic performance the additional costs involved in their continuance may still be small when reckoned with their social productivity in mind. We do not know how large these extra costs are to society. The policy question then arises: Are we paying too high a price in our attempt to achieve a family unit pattern in our grazing lands? More (and difficult) research is needed here.

2. To what extent is the family unit in agriculture in New Mexico burdened with an excessive supply of labor which depresses the returns to the human agents—that is, pulls down the earnings of the farmer and the members of his family? This puts into focus returns to people engaged in this type of agriculture relative to the earnings of comparable workers and owners elsewhere in the American economy. The returns for human effort on many family units in New Mexico probably are substantially below the standards of income of the whole economy. There is merely a hint in this study that this may be the case. It should be explored fully. Such a condition raises important policy issues.

3. Family farms in many parts of American agriculture are subject to considerable capital rationing. Is this a significant factor in New Mexico? In other words, to what degree do men substitute their labor, and that of their family members, for investments in tools, methods, and improvements without which there can be no increase in the productivity of their ranches or farms? And here, perhaps, we should reckon productivity not merely in terms of tons of meat or grass, but also in the leisure, education, and the accepted standards of comfort. How much does capital rationing reduce the economic efficiency of the family ranches, and does it cause substantial overgrazing?

If both the labor and capital relationships touched on in the questions above were *adjusted,* the family unit would rise very considerably in its economic efficiency, and the incentive (or compulsion) to overgraze might be appreciably reduced. What is the evidence on this point?

4. Economic uncertainty caused by weather and prices must place a heavy burden on the producers who use grazing land. How much of the misuse of land has its roots in economic uncertainty? One may venture the view that many ranchers faced with this uncertainty attempt to maximize immediate returns in the belief that they cannot bank on the future. And is not a considerable part of the political, legal, and economic maneuvering of producers simply an effort to find some way to deal with yield and price uncertainty? If this is true, then it behooves us to develop a rationale for analyzing both economic risk and uncertainty in relationship to the problem at hand.

From an economic point of view we should evolve institutions that would embed the cost of climatic risk and uncertainty into the value of the land. This is a job for politicians and political scientists, for it is they who would have to develop institutions that would make land values reflect the degree of weather uncertainty to which the lands are exposed. It will be difficult, at the moment, to convince people that their current ranch investments are too high and that they are not based on sufficiently long-term considerations. Price uncertainty may have to be approached along lines involved in a system of forward prices.

5. Obviously society must provide rules and machinery for allocating scarce resources. To formulate the alternatives as a choice between *rationing* (by public administrators) and *pricing* (by means of relative prices of factors and products) narrows the alternatives unduly. The main point really is: What conditions (legal, social, political) are necessary before we can effectively employ competition to achieve the desired social objectives? Put this way, competition is viewed not as an end, but strictly as a "social" means—one of the alternative means for allocating scarce resources in the economy. The task is to discover those conditions that would make competition serve in pricing factors and products. Prices are, in this context, merely a means for rationing (in this case allocating) resources. Instead of putting the choice as one between administrative rationing and price rationing, we should seek to determine the conditions, including those of public administration, that would make competition serve the social objectives. And here one should distinguish between the social objectives of the whole economy and those more or less peculiar to the people and communities dependent upon public grazing land. If these objectives of the nation and the locality are not the same, it will be necessary to put them in some consistent relationship one to another.

PART II

Efficiency, Stability and Progress

7

Gauging the Economic Efficiency of Agriculture

As more attention is given to high policy for agriculture one can detect a growing awareness of two major economic difficulties that affect agriculture adversely, namely, its inefficiency in a long-run setting and its instability in a short-run context.[1] This approach is clearly evident in the report of the Colmer Committee in its *Post-War Agricultural Policies* (House Report No. 2728, 79th Congress, 2d Session), the Land-Grant report on *Post-War Agricultural Policy*, and in statements issued by the U. S. Department of Agriculture. As yet, however, neither of these problems has been adequately formulated. The reasons are several, but chief among them is the fact that each has been viewed mainly as a series of particular maladjustments within agriculture and not as general economic problems that have their origin primarily in the economic instability and development of the non-agricultural sectors of the economy.[2] Moreover, little is known about the magnitudes of either the allocative inefficiency or the aggregate instability of agriculture. Nor has anyone undertaken a straightforward inquiry to determine: How efficient and how stable is agriculture? Economic thinking on these issues has not gotten down to anything approaching economic characteristics and basic causes. This is clearly evident when it comes to the existing economic inefficiency of agriculture where the stock remedy consists of more technological gadgets and better farm management. A more serious analytical obstacle arises from the fact that the more articulate sectors of

[1] This leaves aside the income problem, that is the inequality of incomes.

[2] *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, is based on this formulation. J. S. Davis' review of my book in *Review of Economics Statistics*, Vol. XXIX, May, 1947, represents, so I interpret it, a comprehensive dissent from this identification of two primary economic difficulties confronting American agriculture. My note published along with Davis' review is an attempt to state concisely the differences in presuppositions to help clarify the basic issues in the belief that this will facilitate further analytical work on these matters by others.

agriculture—those that actually predominate in agricultural economics —are strongly wedded to the erroneous presupposition that American agriculture is by and large quite efficient.[3] This belief blinds the great majority of professional workers. Should not this belief be challenged?

The main thesis of this chapter may be put as follows: *The agriculture of the United States is far from efficient when tested against economic criteria.* It will suffice to suggest the extent of this inefficiency.

I Existing Beliefs

The belief is widely held that farming in the United States has no peer. It has all the necessary earmarks—it is apparently advanced, modern, and progressive. It has tractors, combines, and cornpickers; hybrid corn, disease-resistant wheat, and new varieties of cotton; artificial insemination of cattle, cross breeding of hogs, and in terms of nutrition our livestock are better fed than are our people. With these advances, and many more, American agriculture, it is said, leads them all. It is out ahead presumably because of the flood of new methods and improved techniques developed by our Agricultural Experiment Stations and disseminated by the far-flung Agricultural Extension Services. If this is not enough to make American agriculture efficient, all that can possibly be lacking is the more general adoption of these techniques and methods. When that is achieved, so the prevailing belief goes, American agriculture cannot be other than highly efficient, more efficient than farmers elsewhere, and fully as efficient as producers in other fields. This point of view was further strengthened during World War II by the remarkable capacity of farmers to produce more food and feed despite wartime difficulties and a large shrinkage in the farm population.

The achievements in production of agriculture notwithstanding, and though students from all parts of the world come to this country to study and benefit from our accomplishments, farming in the United States taken as a whole does not come anywhere near meeting the standard of

[3] There is, of course, an easy way out and that is to ascribe enough non-monetary utility to each farming area always to compensate exactly for any difference in the value productivity between the human effort employed in a given farming area compared to that of other occupations. The procedure is really very simple: if a million farm families produce only $600 per year in terms of products consumed, traded, and marketed and the "equilibrium" value productivity for comparable human effort elsewhere in our economy is $2,000 annually, simply add in $1,400 for these intangibles and a fine balance is struck "proving" that a benevolent equilibrium between agriculture and other sectors of the economy prevails! If any methodological doubts should arise, it is, of course, convenient to say that no one can tell how much these non-monetary utilities are worth.

efficiency set by the American economy.[4] Instead it has all the earmarks of being highly inefficient, falling far behind most other major industries. How much inefficiency has become embedded in agriculture is a disputed point. Few agricultural economists, however, would contend for even a moment that a full-time family farm, under pre-war price and cost conditions, producing a value of product of less than $600 was anything other than inefficient. Yet the 1940 census identified well over a million such farms.[5]

A few studies are available that provide a clew to the existing situation. Before turning to these, however, it should be noted that regardless of the state of the arts an optimum utilization of resources is a desired goal.[6] Waste, consisting chiefly of human effort in the case of agriculture,

[4] The concept of efficiency is applicable to different input-output relationships depending upon the conditions set by the problem. In a certain "technical" setting it may be employed to determine, for example, how to produce the most *corn* on an *acre of land* regardless of the cost of the inputs, the objective being to find the combination of inputs that produce the largest yield of corn and this would represent "maximum efficiency" in such a context. In farm management it may be used to determine, for instance, how to produce the most *profit* on *a farm* with the assets at the disposal of the farmer and with the prices of inputs and outputs given. The combination of resources that would achieve this goal would, under given conditions, represent "maximum efficiency." Still another formulation, the one underlying this chapter, has as its goal the task of determining how to produce (achieve) the largest *social product* in *the economy* as a whole, given the existing cost and utility patterns. When all resources in the economy are allocated so that no further gain can be achieved by an additional transfer of a factor or product from one use to another use, "maximum economic efficiency" is achieved. This would represent the *ideal,* the general (optimun) equilibrium of economic analysis.

Throughout this chapter the concepts of "efficiency" and "inefficiency" are in terms of economy, namely, the third of these formulations thus going beyond farm management where prices of inputs and outputs are taken as given. The main focus of this chapter is upon *factor disequilibria* that are causing widespread economic inefficiency in the American economy and affecting adversely especially farming in the United States.

[5] This figure presumably leaves aside part-time farms, rural residences and semi-retired operators.

[6] Alec L. Macfie in *Economic Efficiency and Social Welfare*, Oxford University Press, 1943, presses the argument that efficiency is not merely an instrumental value but that it has the main characteristics of moral value. He starts by identifying efficiency with economy: ". . . if we develop economy into a realistic definition we find that it is only another word for efficiency. Economy in a negative sense is the process of avoiding waste. More positively, it is the process of making the most out of scarce resources" (p. 105). Then, after putting efficiency to a series of tests to see if it has the characteristic of other primary moral values, he concludes his Chapter VI, "We can and ought to consider efficiency in the same way, with the same methods and relative to the same standards, as we do any other human virtues. . . . In this sense, efficiency is of the same stuff as the other values, and so is commensurable with them. . . ." (pp. 129–130.)

should be avoided whether the existing technology is primitive or highly developed. Moreover, it is not only possible but necessary to abstract from both the state of the arts and the state of management in order to get at those aspects of economic efficiency under discussion. To put this another way, given the existing technology and management, are we achieving even approximately an optimum utilization of resources? It is, of course, true that better management on the part of individual farmers with regard to the resources at their command and the adoption of better methods and techniques can increase substantially the output of land, capital and of human agents. In this chapter, however, the emphasis is not upon techniques or management but upon the lack of economic efficiency that arises from a malallocation of resources among industries and among firms independent of technology and enterprise. Moreover, it will become evident that the rapid advances in agricultural techniques, and possibly also in management, under existing demand and population conditions, have contributed in no small measure to the relatively low economic efficiency characteristic of so much of the agriculture of the United States.[7]

II Comparative Analysis

To turn now to the studies referred to above, four types of evidence are at hand. The first deals with the output per worker of one part of agriculture relative to other parts; the second, with some differences in productivity between agriculture and industry; the next, with some international comparisons; and the last, with the marginal productivity of labor and capital in agriculture.

1. Differences within agriculture

It is convenient to start with the assumption that the more efficient farming areas in agriculture utilize the resources they employ about as well as do most non-agricultural industries. This assumption implies that relative to industry no significant malallocation of resources exists in the more efficient areas in agriculture; and, therefore, comparable inputs result in outputs of about equal value in industry and in the more efficient farming areas. Given this assumption, we leave aside for the time being the question of whether a disparity of resource utilization prevails be-

[7] See Theodore W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, Chap. III.

tween industry and the best in agriculture and concern ourselves solely with the situation within agriculture broadly considered. Ducoff and Hagood have done excellent pioneering work on this point, and so have Barton and Cooper.[8] Ducoff and Hagood ascertained the regional differences in labor productivity in agriculture on a gross and a net value basis taking 1939 output and "a man-equivalent" unit to measure the labor inputs.[9] Barton and Cooper calculated the gross farm production per worker for the years 1919 to 1944.

The facts that emerge in these studies certainly do not support the existing folklore regarding the much vaunted efficiency of American agriculture, provided we look at agriculture as a whole and not at a few selected farms. The figures are indeed devastating in their sweep and force, yet they have not received nearly the attention they deserve from serious students of agricultural economics.[10]

The West emerges as the most efficient, having an output per man—equivalent 2.5 times as large as that of the South. To put this in terms of 1939 production as reported by the 1940 census, it means that the value of products per man-equivalent in the West was about $1,500 compared to about $600 in the South. Table I is based on Ducoff and Hagood.

These wide differences in output embedded in agriculture are not at variance with common knowledge. The cost of this mass inefficiency is not known; nor are the causes well understood, much less the remedies consistent with a "free" society; nevertheless, the fact that the disparities in value productivity are very considerable is generally known. But little is being done to lessen the waste of resources associated with this inefficiency. Rather than break the cake of custom these inefficiencies are "viewed" as natural. It is easy to take satisfaction in the few areas and

[8] Louis J. Ducoff and Margaret Jarman Hagood, "Differentials in Productivity and in Farm Income of Agricultural Workers by Size of Enterprise and by Regions," U. S. D. A., Bur. of Agr. Econ. August, 1944, 54 pp. (mimeo.), Glen T. Barton and Martin R. Cooper, *Farm Production in War and Peace,* U. S. D. A., Bur. of Agr. Econ., December, 1945 (mimeo.) FM 53.

[9] The man-equivalent unit used by Ducoff and Hagood "represents an approximation to the labor time input and work capacity of the average farm operator who is under 65 years of age and does not work off the farm in excess of 100 days per year." This estimate was developed to allow for the regional differences in time input, physical capacity, and skills of the labor force in agriculture. See page 3, especially footnote 4, and Appendix, pp. 36–38.

[10] It is to be regretted that studies of so much merit should be buried in a casual mimeographed release. Furthermore, other writers have made only the most cursory reference to the many broad implications to efficiency inherent in Tables 1–7 in Ducoff and Hagood and Table 29 in Barton and Cooper.

TABLE I

Region	Value of product per man-equivalent[a]		Value added by agricultural production process per man-equivalent[b]	
	(*In dollars*)	(*Relative to Pacific*)	(*In dollars*)	(*Relative to Pacific*)
Pacific	1,558	100	1,409	100
Mountain	1,423	91	1,204	85
West North Central	1,286	83	1,135	81
New England	1,244	80	950	67
East North Central	1,197	77	1,112	79
Middle Atlantic	1,129	72	952	68
West South Central	700	45	716	51
South Atlantic	608	39	583	41
East South Central	486	31	493	35

[a] The total value of agricultural products is that reported by the 1940 Census of Agriculture and it does not include government payments to farmers.

[b] Total value of agricultural production (adjusted to the Bureau of Agricultural Economics level and to include government payments) less the following operating expenses: feed purchased, livestock purchased, fertilizer and lime, cost of operating motor vehicles, and a group of miscellaneous expenses consisting of such items as seed, insecticides, containers, electricity for production, twine, ginning, operating gas and steam engines, irrigation, grazing, miscellaneous dairy supplies, blacksmith and miscellaneous hardware supplies, etc.

D. Gale Johnson in "Contributions to Price Policy . . . ," *Journal of Farm Economics*, November, 1944, p. 642, has a table giving estimates of the net farm income per worker for 1939, 1940, and 1941 expressed as an index. In it the New England region drops from fourth to sixth place, the Mountain region from second to fourth, while the W. N. Central rises to second and the E. N. Central to third. This index ranges from 335 for the Pacific and 265 for W. N. Central to 120 for South Atlantic and 100 for E. S. Central.

Relative Output per Worker Within Agriculture in the United States
(Pacific Region = 100)

Region	1929[a]	1937–1940[b]	1939[c]	1942–1944[b]
Pacific	100	100	100	100
West North Central	99	87	81	111
Mountain	99	84	85	95
East North Central	70	83	79	89
Middle Atlantic	63	73	68	71
New England	57	60	67	64
West South Central	50	43	51	45
South Atlantic	44	37	41	39
East South Central	36	31	35	34
United States		59		66

[a] From Colin Clark, *The Economics of 1960*, Macmillan, 1943, p. 35. Clark's absolute figures are in terms of an international unit and as follows, starting with

farms that are relatively efficient and let pride blind us to the cost of the rest.[11]

A word or two on the probable magnitudes involved may be helpful at this stage. Less than one-tenth of the farms in the United States are situated in the West; one-half of them are in the South. The data in Table II are also from Ducoff and Hagood based on 1940 Census.

TABLE II

Area	*Number of farms (in millions)*	*Output per worker rating*[a]
West (Pacific and Mountain)	.5	1.00
North (West North Central; New England; East North Central; and Middle Atlantic)	2.6	.70 to .85
South (West South Central; South Atlantic; and East South Central)	3.0	.30 to .45

[a] This rating is merely with regard to differences in output within agriculture. It does not identify and isolate the contributions to production attributable to labor from that attributable to other factors, that is to capital including land. Plainly the bundle of cooperating factors used with labor in the more productive areas is much larger than it is in the South. The capital investment per farm worker in 1939, as computed by Ducoff and Hagood, was $7,211 and $6,243 in the Pacific and Mountain areas respectively and down at $1,958 and $1,887 in the South Atlantic and East South Central.

Still another formulation of the mass inefficiency in agriculture is at hand if we take all classified farms and put them into two categories as in Table III.

What these figures suggest is that about two-thirds of the labor force in farming in the United States before the war was exceedingly unpro-

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the Pacific, 1102, 1092, 1086, 772, 691, 628, 546, 490, and 394 for East South Central, and are based on earlier work of Professor John D. Black.

[b] From Glen T. Barton and Martin R. Cooper, calculated from unpublished data.

[c] From Ducoff and Hagood. See earlier reference. The 1942–44 relationships are included to show that even under conditions approaching full employment the major regional disparities in output per worker in agriculture are fully evident. I am mindful, however, that these data omit the "unemployment" of hired workers, often of considerable importance in some regions, especially in parts of the West, while they may include this factor in the case of croppers and others.

[11] A few years ago a group of agricultural experts visited this country. They were cordially assisted. After they had finished their trips to see our agricultural colleges and farms, a meeting with some of the U. S. D. A. experts was arranged. One of the visitors opened by remarking, "Your published statistics indicate that about 1.5 million of your 6 million farms have tractors. Are these figures correct?" He was assured that such were the facts. Whereupon he sagely observed, "Where are the 4.5 million farms without tractors? We have been in every major region but we have not seen a farm without a tractor."

TABLE III

Value of product per farm	Farms[a]		Labor force in per cent	Value of product per man-equivalent in dollars	Total agricultural output in per cent
	Number in millions	Per cent			
Up to 1,499	4.6	77	65.6	82 to 837	32.5
1,500 & over	1.4	23	34.4	1,087 to 2,850	67.5

Source: Ducoff and Hagood, *op. cit.*

[a] These data obviously have their limitations. The Census does not identify neatly and exactly economic magnitudes; it does not set out to ascertain the value productivity of human effort devoted to farming. Accordingly, the Census definition of a farm includes many part-time, semi-retired and rural residences. The column "value of product per man-equivalent in dollars," from Ducoff and Hagood, does correct for some of these limitations. Yet in part they persist. It would, however, be shortsighted indeed to become so engrossed with the shortcomings and the details of these data to fail to see the broad outlines of the problem of mass inefficiency embedded in our farming. Better data are, of course, needed but what is much more important is a formulation of the problem in some general economic context so that we can go beyond description to analysis, beyond figures to policy.

ductive. Farm people in this large group for the most part work hard and long but their output has relatively little value; they are underemployed; these human resources are poorly utilized.[12] This widespread inefficiency is not some temporary situation, an emergency or a cyclical depression, but a development of long standing with one part of agriculture, a small part in terms of the total labor force, relative efficiency and the rest, far down the scale not even half as productive.

2. *Agriculture relative to industry*

Let us now examine the assumption made earlier to the effect that the better areas in agriculture utilize resources about as efficiently as industry. If the value of products from comparable inputs were essentially equal, this assumption would be valid and no inducement would exist for resources to transfer either from industry into such farming areas or conversely. No farming area of importance, except perhaps the Pacific

[12] Ducoff and Hagood put it thus: "Thus when an allowance for types of workers in the several value classes is made, the level of worker productivity on low-income farms is still so low in contrast with that of the higher value classes that the conclusion is inescapable that a tremendous amount of underemployment and ineffective employment existed on the farms in 1939." *Op. cit.*, p. 8. Here again, I am mindful of the fact that the whole economy was running in low gear, that several million workers were unemployed and that this "unemployment" is mainly omitted and that this omission affects the two groups differently. But a cursory examination of the data for 1949 indicates that the main relationships herein considered were still present.

during World War II, has during recent decades induced labor resources to enter; instead, the net transfer seems to have been all in the other direction, namely out of farming even under wartime price conditions, which were obviously exceedingly favorable to farming. There is, therefore, a strong presumption that even the more efficient parts of agriculture have not been as productive as have other industries.[13]

If we take the value added by manufacture and compare it with the value added by the agricultural production process, we find that in the West in 1939 manufacture added 2.5 times as much per worker as did agriculture. A gap as wide as this does not support the assumption of equality in output for comparable resources, granted that other important considerations are involved. In the South Atlantic and the East South Central areas this gap is even more striking with manufacture adding more than four times as much value per worker as agriculture. In Table IV data on this point are taken from Ducoff and Hagood.[14]

That industry at this stage of our economic development is in general more productive than agriculture is not commonly understood. Beliefs on this point are mixed. In the main, the misuse of resources that this entails goes unnoticed. The low income of most farm people over the years is not usually attributed to a fundamental malallocation of resources among primary, secondary, and tertiary industries, but to shortcomings of the market mechanism (which, of course, has its limitations), to not having enough technological knowledge, to a misuse of our natural resources, and to the selfish interest of other economic groups of society. Meanwhile, the basic causes for these wide disparities in productivity per head and in earnings per worker within agriculture are overlooked.

3. International comparisons

On theoretical grounds and from observations it is evident that the general level of productivity of labor in the United States ranks high among the countries of the world. This simply means that the comparative advantage of the human factor is relatively high; it is high because

[13]Walter W. Wilcox in "The Wartime Use of Manpower on Farms," *Journal of Farm Economics*, Vol. XXVIII, August, 1946, shows a decrease in the farm population, 1940 to 1945, of 12.5 per cent for the Pacific area and 19.1 per cent for the Mountain area, while the decline for the South Atlantic was 15.9 per cent and for the East South Central 18.8. Wilcox includes some figures showing the decrease in farm employment, 1939 to 1945 annual averages, which show a drop of 8 per cent for the United States as a whole with one region running counter to the stream and this in fact the most efficient area, namely, the Pacific with an increase of 3 per cent.

[14] Based on Table 3, p. 20, of the Ducoff and Hagood mimeographed report already cited.

TABLE IV

Areas	*Value added by the agricultural production process per man-equivalent*	*Value added by manufacture per employee*	*Ratio of value added by manufacture to value added by agriculture*[a]
Pacific	1,409	3,222	2.3
Mountain	1,204	3,372	2.8
West North Central	1,135	3,084	2.7
East North Central	1,112	3,094	2.8
Middle Atlantic	952	2,862	3.0
New England	950	2,261	2.4
West South Central	716	2,754	3.8
South Atlantic	583	2,092	3.6
East South Central	493	2,122	4.3
United States	867	2,762	3.2

[a] These differences between farm and non-farm focusing on the use of labor resources are reflected in regional disparities in wages and incomes. The median wages and salaries income of male laborers working 12 months in 1939 were as follows: [b]

Area	*Farm (dollars)*	*Non-farm (dollars)*	*Farm as per cent of non-farm*
West	646	1,196	54
Northeast	496	1,145	43
North Central	348	1,093	32
South	262	649	40

[b] Louis J. Ducoff, *Wages of Agricultural Labor in the United States*, Tech. Bul. No. 895, July, 1945, U.S.D.A., p. 95.

human effort has a large value productivity and its value productivity is large because of the exceedingly favorable combination of cooperating factors. This high level of productivity in turn means high income per head. Accordingly, the level of income of a country may be taken as a rough index of the relative economic efficiency of the human factor in a country.

Colin Clark gives the average real income per head of various countries in terms of an international unit over the period 1925–34. His calculations put the top ten countries as follows: United States, 1381; Canada, 1337; New Zealand, 1202; Great Britain, 1069; Switzerland, 1018; Australia, 980; Netherlands, 855; Eire, 707; France, 684; and Denmark, 680.[15]

On the assumption that Clark's income figures provide us with a rough measure of the comparative advantage of the human factor in these

[15] Colin Clark, *The Conditions of Economic Progress*. London: Macmillan, 1940, p. 41.

countries, we would expect the output per head to be such that the value productivity of agriculture in the United States would be, if anything, slightly higher than that of New Zealand and Australia, for example. The opposite, however, seems to be true. When we take the overall value productivity of agriculture, New Zealand and Australia produce about twice as much per head as we do in the United States. Denmark affords another comparison where the general level of output per head is about half that of the United States, and yet the agriculture of Denmark appears to produce virtually as much output per person as does farming in the United States. Table V gives figures on the average real production of agriculture per male producer.

TABLE V

Country or area	*Productivity per male producer (in terms of Colin Clark's international unit)*[a]
New Zealand	2,444
Australia	1,524
Argentina	1,233
Pacific (area)	1,102
West North Central (area)	1,092
Mountain (area)	1,082
Uruguay	1,000
East North Central (area)	772
Middle Atlantic (area)	691
United States	661
Denmark	642
New England (area)	628
Canada	618
Holland	579
West South Central (area)	546
Germany	490
South Atlantic (area)	490
Great Britain	475
Switzerland	433
France	415
East South Central (area)	394
Belgium	394
Czechoslovakia	287
Estonia	268

[a] Based on Colin Clark, *The Conditions of Economic Progress*, London: Macmillan, 1940, p. 246, and *The Economics of 1960*, London: Macmillan, 1943, p. 35.

L. Rostas in a recent report [16] places the productivity of labor in British and American agriculture before the war at £159 and $584 respectively. Taking the exchange rate at $3.52, the value productivity of labor in agriculture in these two countries turns out to be about the same. This fact, namely, that the agriculture of the United States is no more productive than that of the United Kingdom, in Rostas' mind, goes a long way in explaining why it was that the standard of living in the United Kingdom was not substantially below that then prevailing in the United States at a time when the manufacturing industry in the United States produced about twice as much per person as it did in the United Kingdom.

These fragmentary data indicate that the economic efficiency of agriculture in the United States is far below par, with par in this context being the standard set by the general level of production per head, which is indeed high.

It follows that the output in agriculture should also be correspondingly high and it would be if resources were properly allocated between agriculture and other fields within the economy. If the economic efficiency of human effort in agriculture were comparable to the productivity of labor in general in the United States it should have an output at least 25 to 50 per cent above that of agriculture in western Europe. But what do we observe? American agriculture as a whole is no more productive than it is in the United Kingdom, according to Rostas' study. In fact, half of the farms of this country appear to fall far below those of the United Kingdom, Denmark, Holland, and the agriculture of other countries of western Europe. One has to go to the very backward agriculture of eastern Europe to find productivity as low as it is on fully half of the farms of the United States.

4. Marginal productivity of resources employed in farming

Economic theory makes equal marginal returns for comparable factors the test of economic efficiency. Economy is achieved when this criterion is met. Little indeed has been done to identify and ascertain the marginal productivity of the factors employed in agriculture, a necessary and preliminary step to the application of this crucial economic test.[17]

D. Gale Johnson [18] has carried forward some work in this sphere. He

[16] L. Rostas, "Productivity of Labour in British, American and German Agriculture," *Royal Economic Society*. Memo. No. 107. September, 1946, pp. 14–17.

[17] Already considered in Chapter 4.

[18] "Contribution of Price Policy to the Income and Resource Problems in Agriculture," *Journal of Farm Economics*, Vol. XXVI, November, 1944. See also Earl O.

found that in 1939 the marginal productivity of capital employed in agriculture, taking American agriculture as a whole, appeared to be about 12 per cent, and that for labor about $390. He goes on to point out that a "reduction of 20 per cent in the labor supply would reduce the marginal productivity of capital from 12 percent to a little less than 10 percent." Accordingly, even then the differential return between the rate of interest and the marginal productivity of capital would remain very wide. Johnson has unpublished data that show the marginal returns on capital in Georgia to have been about 19 per cent in 1939, while in Iowa the returns appear to have been about 10 per cent.[19] The marginal efficiency of capital in much of agriculture is higher than the going rate of interest even with liberal allowance for risk and uncertainty. Contrarywise, the marginal efficiency of labor is far below the going rate of comparable labor in other fields even with generous allowance for the cost of migration and the risk and uncertainty this entails, viewing the economy as a whole.[20]

These four bits of evidence all point to the same conclusion: American agriculture by and large is very inefficient. It does not approach the standard of economic efficiency set by the American economy. Although some parts of agriculture show up fairly well, the general level may be 25 to 50 per cent below par; and major parts, fully half of all farms, may fall below the 50 per cent level. To put this tentative characterization another way: it suggests that more than half of the labor force devoted to farming has an output (value productivity) less than half the standard output of comparable human resources in the American economy taken as a whole. This simply means that resources—human effort, land, and capital—are poorly utilized in much of agriculture. The evidence that we have cited suggests that the waste is prodigious, waste chiefly of

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Heady in "Production Functions from a Random Sample of Farms," *Journal of Farm Economics,* Vol. XXVIII, November, 1946, where he reports results he has obtained for Iowa farms for the year 1939. His study, unlike that of Gerhard Tintner and O. H. Brownlee, "Production Functions Derived From Farm Records," *Journal of Farm Economics,* Vol. XXVI, August, 1944, deals with farms that are a cross section of farming in Iowa. It is, however, a *within Iowa* analysis and thus pertains to a section of American agriculture most nearly efficient in the allocation of resources generally. This observation should not detract from the merits of the technique of analysis. The results, although interesting and useful within Iowa, give no clue to the general problem of achieving an optimum utilization of resources within the economy as a whole.

[19] See also Ducoff and Hagood, *op. cit.,* Table 3, on value added by the agricultural production process per $100 fixed capital investment.

[20] See Theodore W. Schultz, *Agriculture in an Unstable Economy,* New York: McGraw-Hill, 1945, p. 78 and Chapter IV.

time and energy of millions of farm people and of a vast amount of natural resources. Three economic afflictions, each of them chronic and of long standing, may be identified in agriculture as a result: (*1*) *underemployment of human resources,* (*2*) *an unwarranted disinvestment of natural resources,* (*3*) *a widespread rationing of capital.*

III Implications

It certainly is not my contention that the facts cited are conclusive. They do, however, give an inkling of what we may find when more serious studies of economic efficiency of American agriculture are undertaken. Much needs to be done to identify and measure the relative productivity of the various resources devoted to farming, relative to the output of comparable resources in other fields.

Yet it must be borne in mind that this endeavor is merely a preliminary step and we should guard against the pitfall of making it an end in itself. The main task is to ascertain the causes for this adverse development. What broad forces—economic, political, and cultural, and each in their institutional setting—are fundamentally responsible for this vast waste of resources in farming? Why is the United States, in contrast, for example, with New Zealand and Australia, so generally afflicted with resource malallocations as between industry and agriculture? In short, what are the root causes for the mass inefficiency of our agriculture?

Until we achieve a rationale that gives a valid explanation for this development, we will be ill equipped for forging appropriate remedies.

In this context, agriculture in most advanced Western countries has become a depressed industry. Why do the primary industries—mining, farming, fishing, and the like—become depressed? To penetrate into this problem which is spreading even farther among primary industries we need above all a basic economic rationale, a theory that tells us why most primary industries become depressed.

The premiums for inquiry in this sphere should be large because the problem is so significant and its solution so vital to a better performance of our economy. Yet little in fact is being done to analyze this complex and important issue.

It may be well to reiterate that farm technology and farm management will not provide either the theory or the facts for analyzing and resolving the problem of mass-inefficiency characteristic of our agriculture at this state of our economic development. It is quite plausible that this widespread economic inefficiency would not have arisen in Western

countries had the Ricardian conditions prevailed, that is, had the supply of food stayed highly inelastic, so inflexible, in fact, that as population increased and as economic progress occurred in non-agricultural branches, it would have been necessary to transfer relatively more capital and labor into agriculture in order to produce the larger quantity of food required.[21] Advances in farm technology and in the state of farm management, however, have been responsible for averting the Ricardian consequences: an avoidance of the higher cost of food, rising rents, and a progressive enrichment of the land owners as population pressed against the means of subsistence. In forestalling this dismal development, technology and management have made possible cheaper food and falling rents, and have rendered a great many farmers superfluous, so it appears.

It may well be that one of the main causes for the economic inefficiency of agriculture in Western countries is to be found in the very advances in farm technology and the researches that have made this possible, coupled with the forward strides that have been made in farm management as it is now conceived and applied.

[21] Such a development would, of course, have restricted the economic progress of the non-agricultural sectors of the economy.

8

The Economic Stability of Agriculture

EXISTING BELIEFS with regard to economic fluctuations are in sharp contrast with those on efficiency with no illusion that all has been going well. In agriculture, for one reason or another, the farm problem, so much in the forefront during the interwar years, has been associated altogether too largely with economic instability.[1] The notion lingers that the production of food is still a matter of feast or famine as it was of old, and as it still is in most of the less developed countries. Wars, booms, and depressions have focused attention on the gyrations of farm prices, at one stage rising and soaring abruptly to absurd heights and at another falling to unbelievable depths. Farm people are at one time the recipients of large unexpected windfalls, and at another suffer losses, bringing about widespread bankruptcy. Yet oddly enough there also is the view that hard times may come and go without seriously affecting farm people, for they, it is often presumed, above all other groups are always secure in having enough food, fuel and shelter.

This mixture of beliefs is also characteristic of the thinking in economics when it comes to agriculture. More important, however, is the fact that no general principles have been established for analyzing the problem of instability, principles that are on a footing with those employed in ascertaining whether an optimum utilization of resources is achieved in the long run. The analytical tools with which economists work have not been designed to handle problems of the type on which we are focusing, that is, for *dealing with the short and sudden fluctuations of the main economic aggregates.* Accordingly, we do not have at hand the concepts or theory for formulating the problem, for identifying its primary characteristics, and for making an analysis. Economic

[1] As a consequence there has been a tendency to overlook (1) the long-run allocative inefficiency characteristics of so much of agriculture; (2) the inequality in incomes within agriculture; (3) the inadequacy of farm tenure and other institutions.

theory in this sphere is in general unsettled; several schools of thought hold forth but none has had the strength to win the field.[2]

Let us start with the query: What do we mean by economic instability? One important line of inquiry is to determine whether a given economic system has the capacity to work its way back toward an equilibrium[3] after a particular type of disequilibrium has occurred. Another approach begins with the presupposition that the economic system does have the capacity to equilibrate and seeks to find out how far given movements will go before the equilibrating forces become effective. Still another approach starts from the belief that the movements of the main economic aggregates are too great (presumably too "costly") before the equilibrating capacity takes hold, and endeavors to discover how to enhance the capacity of the economic system to achieve greater stability. In this chapter we shall have occasion to direct attention to unsettled issues falling in one or the other of these three categories.

Given the existing state of our knowledge, we can only speculate with regard to the economic magnitudes likely to prove significant and useful in analyzing the problem of economic instability as related to agriculture. Production, prices, and income undoubtedly have a high priority from a policy point of view. They certainly will provide a clew to certain types of instability, although none of them will give any clear and definite notion of the "cost" of the instability thus identified.[4] Nor will these magnitudes necessarily tell us how to proceed to counteract the fluctuations, nor explain why they occur. Nevertheless, a crude,

[2] Two remarks are called for at this point. (1) Although the analytical equipment for ascertaining economic efficiency is firmly established, it nevertheless is exceedingly abstract and as yet when applied yields results that are usually of limited usefulness. Accordingly, it is easy to claim too much for analyses dealing with economic efficiency. (2) An awkward gap exists between equilibrium theory based on the rationality of firm and household behavior and fluctuation or cycle theory. This is the gap that separates the *micro*-economics of firms and households and the *macro*-economics of aggregates. (See Professor J. Marschak's comments on this point, "A Cross Section of Business Cycle Discussion," *The American Economic Review*, Vol. XXXV, 1945.)

[3] By equilibrium in this context I mean achieving full employment at essentially stable prices.

[4] These "costs" are nevertheless large and important as we will show below in the case of marketing. Given the existing instability in farm prices and incomes, the market for farm products is not permitted to function efficiently. In agricultural production the chief costs are in terms of adverse effects on allocative efficiency arising from mistaken expectations and failure of alternatives to present themselves. In addition there is a cost in the fluctuations in income to the individual income recipients.

first approximation of the instability problem confronting agriculture in this sphere may be achieved by examining movements of production, prices and income.

1. Production

To achieve full employment [5] and maintain it is a policy objective that has high priority. It is so because of the social necessity of avoiding mass unemployment. No doubt the most serious social consequence of our unstable economy arises from its erratic production that has come to characterize many major industries. But agriculture is not one of them.[6] Agricultural output is not afflicted by the business cycle virus. The data in Table I give some clew to this difference in agricultural and industrial production on this score.

[5] Although much has been said on the term "full employment," the concept is still chiefly a political goal very loosely visualized. To make headway it is necessary to put it into a policy context so that it may be more useful in dealing with significant public policy issues. To do this, several steps are required. At this stage of our knowledge regarding the cycle and the way an economy develops, "full employment" is at best a relative concept and not some absolute amount of employment. In broad outlines there are two different policy settings for which we should formulate the concept of full employment. One of these, on which virtually all the current discussions appear to focus, has to do with the cycle, that is, with the sharp and sudden fluctuations in aggregate demand. When demand becomes markedly deficient, deflation and too little employment occur and when it becomes excessive, inflation in terms of factor and product prices follows. As yet we are not able to identify satisfactorily when either of these situations is beginning to occur.

The second policy setting takes us back to the longer run allocative efficiency of a developing economy giving rise to conditions where the expanding sectors of the economy are likely to engage too few resources (overemployment of the resources already devoted to such production) and where the contracting sectors use too many resources (underemployment of the resources being used). It would simplify matters greatly if these two sets of circumstances were neatly separated, but unfortunately they occur all bundled together. To illustrate, late in 1946 and in 1947 the early post-war transition, driven by very swollen demands for goods and services, gave rise to a marked inflation and too much employment demand in the dominating sectors of business in a short-run cyclical context. As this excessive employment materialized there existed at the same time considerable underemployment in a long-run context because several million workers, especially in Southern agriculture, continued to remain grossly underemployed because of the excessive supply of labor in farming in that area, a problem of long standing.

[6] For a meticulous treatment of the cyclical characteristics of selected business activities, see Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, 1946. This study, however, omits agriculture. For reference to more recent work in this area by the National Bureau, see my remarks in footnote 12 bearing on the study of Geoffrey H. Moore, *Harvest Cycles*. See also John K. Galbraith and John D. Black, "The Maintenance of Agricultural Production During Depression: The Explanations Reviewed," *The Journal of Political Economy*, Vol. XLVI, 1938.

TABLE I

Change in production from the preceding year (in per cent)	*Agricultural production*[a] 1910–1946 *(Number of years)*	*Industrial production*[b] 1919–1945 *(Number of years)*
+26 to +30	—	2
+21 to +25	—	3
+16 to +20	—	4
+11 to +15	1	2
+ 6 to +10	4	4
0 to ± 5	29	4
− 6 to −10	2	1
−11 to −15	—	1
−16 to −20	—	2
−21 to −25	—	3
Average variation (in per cent)	3.9	15.0

[a] This is based on production for sale and consumption. It gives the best measure of the current year volume of farm products which enter the marketing system and thus contribute to gross cash or realized farm income. See U. S. D. A., *Farm Production in War and Peace*, F. M. 53, by Glen T. Barton and Martin R. Cooper, 1945. Especially pp. 66 to 71.

[b] From Federal Reserve Board Bulletin.

It is obvious from an inspection of these data that American agricultural production *taken as a whole* is remarkably stable. Only twice during the last three and a half decades did aggregate output fall more than 5 per cent from the preceding year, namely 10 per cent in 1921 and 6 per cent in 1932. In both cases the drop was caused by what happened in crops, for livestock output stayed almost constant. The sharp depression of 1920–21 may have been a minor factor although the total crop acreage did not change appreciably,[7] suggesting that a drop in yields was the main cause. In the other case, the crop acreage actually increased between 4 and 5 million acres. Accordingly it is hard to ascribe even these relatively small decreases to the downward shift in aggregate demand.[8]

[7] See p. 84 of the *1924 Yearbook of Agriculture*. Total crop acreage in 1920 was 347,634,000, in 1921, 348,178,000.

[8] It should not go unnoticed that neither the 1934 nor the 1936 drought pulled aggregate agricultural production (for sale and consumption) down as much as 6 per cent from that of the preceding year. Note, however, that the new index (see below) measuring gross farm production shows a marked drop for these years.

TABLE II

Change in production from preceding year (in per cent)	*All farm commodities (No. of years)*	*All livestock and livestock products (No. of years)*	*All crops (No. of years)*
+16 and more	—	—	3
+11 to +15	1	—	5
+ 6 to +10	4	7	5
from 0 to ±5	29	27	12
− 6 to −10	2	1	6
−11 to −15	—	1[a]	4[b]
−16 and less	—	—	1[c]
Average variation (in per cent)	3.9	3.6	9.5

[a] 1935. [b] 1913, 1916, 1932, and 1934. [c] 1921 dropped 22 per cent.

The data in Table II seem to support the following tentative inferences:

1. The aggregate output of American agriculture is, if anything, conspicuously stable.

2. It is not affected adversely in the short run by a drop in aggregate demand such as occurred in 1920–21, 1930–33, and 1937–38.

3. Nor, contrary to general opinion, is the aggregate output of agriculture affected substantially from year to year by changes in weather.

4. The aggregate production effort (input of resources) in agriculture is probably even more stable than is the aggregate output (production for sale and consumption).

It may be observed that the aggregate output of agriculture in the United States provides consumers about the same volume of farm products during a depression as in prosperous years; that "big crops" do not come along to "help" business recover from a depression; that attempts to make agricultural production a variable, even on such a colossal scale as that of the AAA in the thirties, did not reduce agricultural output as a whole; and that the adverse effects of business depressions creep into agriculture and seriously upset prices and income but not production as a whole. Thus far, at least, farmers have not responded

to a cyclical decline in the aggregate demand for farm products by curtailing the employment of land and labor.[9]

This does pose a significant issue: Why is the aggregate output of agriculture in the United States so stable, despite the vagaries of weather and of business cycles? More particularly in this context, why is agriculture so immune to the cycle virus? If we can identify the causes for this immunity, may it not suggest an antitoxin for what now plagues so much of our non-agricultural economy?

If these observations create the impression that each of the several parts of agriculture also has a stable production record, it needs to be corrected. In fact, agricultural production as an aggregate hides a lot of "costly" variability, so much that one might well ask what meaning can be attached to the aggregate. The Bureau of Agricultural Economics (Glen T. Barton and Martin F. Cooper already cited) has developed a set of indices for *gross farm production* by geographic regions which show three regions (New England, Pacific, and Middle Atlantic) with average mean deviations from 3.2 to 4.4 per cent; four additional regions (East North Central, Mountain, South Atlantic and East South Central) falling between 6.7 and 8.1 per cent; and, the West North Central at 10.7 per cent, with the West South Central having the most extreme record, namely a mean average deviation of 11.7 per cent. The year to year variations in gross farm production from 1919 to 1945 are given in Table III.

It is also plain from the data that particular farm products are far from stable in output. Moreover, these fluctuations give rise to specific problems. These fluctuations in product output are mainly caused by variations in yields. The situation in feed crops is striking, and because of the importance of feed in the agricultural economy of the United States there is a strong presumption that it deserves serious attention. Furthermore, it should be noted that although the aggregate output of agriculture is notably stable, a fortunate situation from the point of view of the economy as a whole, the variations in production on individual farms is a basic consideration to the farm family concerned. These variations from farm to farm are obviously hidden by a national average. We may presume, however, that in the main they are not caused by the periodic rise and fall of the aggregate demand but by

[9] There is need for inquiry on this point to ascertain (1) the nature of the supply response of producers of farm products to cyclical changes in demand, (2) types of responses that characterize different producers, and (3) the economic rationale underlying the production decisions of producers in response to the cycle.

technical production circumstances such as weather, disease, insects, damage and others.

It may well be true that a few particular products will, upon closer analysis, show expansion and contraction characteristics over the cycle akin to those of industry. The principal policy consideration for agriculture taken as a whole, however, is not one of achieving tolerable production stability but to maintain that which has developed.

TABLE III

Data for regions are for the period 1919 to 1944, for the United States from 1919 to 1945

(*Number of years*)

Change in gross farm production from preceding year (in per cent)	*United States*	*New England*	*Pacific*	*Middle Atlantic*	*East North Central*	*Mountain*	*South Atlantic*	*East South Central*	*West North Central*	*West South Central*
+31 and more	—	—	—	—	—	—	—	—	2	2
+21 to +30	1	—	—	—	2	—	—	2	—	1
+16 to +20	1	—	—	—	1	1	1	—	1	1
+11 to +15	—	—	1	1	—	2	4	1	1	2
+ 6 to +10	3	3	5	4	4	7	4	5	5	4
0 to ±5	17	19	18	16	12	10	11	10	10	5
− 6 to −10	3	3	—	3	4	3	3	3	3	5
−11 to −15	1[a]	—	1[b]	1[c]	2[d]	2[e]	—	3[g]	—	3[l]
−16 to −20	—	—	—	—	—	—	2[f]	1[h]	1[i]	1[m]
−21 to −30	—	—	—	—	—	—	—	—	1[j]	1[n]
−31 and less	—	—	—	—	—	—	—	—	1[k]	—
Average deviation (in per cent)	5.5	3.2	4.4	4.4	6.7	6.8	7.7	8.1	10.7	11.7

Source: Barton and Cooper, *op. cit.*, pp. 73–83.

[a] 1934. [b] 1924. [c] 1921. [d] 1933, 1936. [e] 1933. [f] 1921, 1932. [g] 1927, 1930, 1938. [h] 1932. [i] 1933. [j] 1936. [k] 1934. [l] 1927, 1933, 1938. [m] 1921. [n] 1934.

2. *Prices*

How unstable are farm product and factor prices? To give this query meaning it is necessary to indicate what it is we want the price system to achieve and what are the criteria for identifying this achievement. In

an economic context prices have an important and unique role to perform in connection with the valuation of products and factors.[10]

Our quest is for an efficient pricing system, efficient in performing several functions that integrate major economic processes. As policy

[10] The remainder of this section deals with markets for farm products. Markets for factors employed in farming—land, labor, equipment, machinery, materials, etc. —also present problems in terms of stability. Booms and busts in land prices is an old story in the United States. More recently wars and their aftermath have introduced marked instability in the land market. Wage rates in agriculture are about as variable as is the income from farming. To my knowledge no attempt has been made to ascertain how efficiently the *factor markets* serving agriculture function. The criteria for determining efficiency in this context have not been developed. In general, however, this much seems obvious: these factor markets are important; they appear to be unstable cyclewise and especially in going from peace to war to peace; they have been quite inefficient over the years in bringing about factor equilibrium for the economy as a whole in view of the great excess of labor resources embedded in farming and the substantial deficit of capital that characterizes much of agriculture. Some insight with regard to the fluctuations of factor prices of agriculture is to be had from the following data:

PRICE CHANGES OF FACTORS USED IN AGRICULTURE, 1910–1945

(Number of years)

Price change from preceding year (in per cent)	*Farm machinery*	*Equipment and supplies*	*Land (value per acre)*	*Prices paid in production*	*Fertilizer*	*Bldg. mat'l other than house*	*Labor weighted (average rate per month)*	*Land (gross rent to landlords)*
+31 and above							2	2
+21 to +30	1	2	1	1	1	—	3	2
+16 to +20	—	1	—	1	—	3	3	2
+11 to +15	1	—	1	3	3	2	4	5
+ 6 to +10	—	4	5	5	7	7	4	6
0 to ±5	32	24	20	20	19	19	15	11
− 6 to −10	—	2	2	2	2	2	1	—
−11 to −15	1	1	1	2	1	1	1	1
−16 to −20	—	1	2	1	2	—	—	1
−21 to −30	—	—	—	—	—	1[a]	2[b]	3[d]
−31 and less	—	—	—	—	—	—	1[c]	1[e]
Average deviation (in per cent)	3.5	5.4	5.9	6.7	6.1	6.2	11.1	13.2

[a] 1921. [b] 1931, 1932. [c] 1921. [d] 1920, 1921, 1932. [e] 1931.

with regard to farm prices has taken shape, four fairly distinct functions have come to the forefront, namely: (1) prices to guide the allocation of resources in production; (2) prices to channel products into trade both at home and abroad; (3) prices to distribute income from farming over time, and (4) prices to distribute income among persons.

Can a pricing system be "efficient" in all these functions at one and the same time? Are we not putting altogether too big a burden on the pricing system and thereby weakening it and making it less efficient than it otherwise would be in performing the more limited tasks that are appropriate to its capacity? The answer to the latter question appears to be strongly in the affirmative, both on theoretical grounds and from the lessons taught to us by experience.

Let me make explicit at this point that the formulation of the pricing problem that follows is based on the belief that prices are not an appropriate means for "stabilizing" the income from farming over time, and also that they are not suited to lessen the inequality in the personal distribution of incomes. Moreover, I shall assume that the main positive role of the pricing system is to guide production and to channel products into trade for domestic and foreign use. To take still another step, given the existing state of our political economy—chiefly the prevailing attitudes toward economic policy, the nature and capacity of economic institutions, and the type of development that characterizes our economy—it is my belief that that part of the pricing system on which agriculture depends most directly *will not be permitted* (politically and institutionally) to perform its production and marketing functions efficiently, unless ways and means are first found (1) to make the flow of farm income much steadier than it has been from one year to another and (2) to reduce substantially the inequality in income among families. The first of these is, politically, much the more urgent of the two. Plainly we came out of the inter-war period and World War II with a price policy for agriculture designed primarily to attain the objective of stabilizing farm incomes over time. If this appraisal proves to be correct, it follows that a high priority should be given to inquiry for finding ways and means that will free the pricing system from the two income burdens described above, especially that of putting the flow of farm income on a steadier basis.

Let us then proceed by leaving the income problems aside, which means that we shall assume at this point that the pricing system is freed so that it can concentrate on the first two functions outlined above,

TABLE IV

THE FOLLOWING DATA FOCUS ATTENTION ON THE YEAR-TO-YEAR CHANGES IN AGRICULTURAL PRODUCTION OF SELECTED MAJOR PRODUCTS

(From 1910 to 1946 except for sheep, lambs, and hogs, which cover the years from 1910 to 1945)

Changes in production from preceding year (in per cent)	*Dairy products*	*Poultry and eggs*	*Cattle and calves*	*Meat animals*	*Sheep and lambs*	*Hogs*	*Wheat*	*Food grains*	*Corn*	*Fruits and tree nuts*	*Tobacco*	*Cotton*	*Oil-bearing crops*	*Potatoes*	*Feed crops*
+31 and more	—	—	—	—	—	—	2	2	2	4	4	3	8	2	3
+21 to +30	—	—	—	—	1	3	2	5	2	3	2	2	3	3	5
+16 to +20	—	1	—	—	1	2	4	1	3	2	2	3	3	3	0
+11 to +15	—	1	—	4	2	3	2	2	5	2	5	4	2	4	2
+ 6 to +10	—	8	8	9	6	2	3	4	3	5	4	4	4	2	7
from 0 to ±5	36	25	22	18	18	18	14	11	9	7	7	7	5	5	4
— 6 to —10	—	1	4	4	4	4	1	3	3	5	3	3	2	5	3
—11 to —15	—	—	1	—	2	1	3	1	2	3	3	3	3	6	3
—16 to —20	—	—	—	—	1	1	2	5	3	1	2	—	2	3	4
—21 to —30	—	—	—	1	—	1	2	1	2	3	2	5	2	2	3
—31 and less	—	—	—	—	—	—	1	1	2	1	2	2	2	—	2
Average deviation (in per cent)	2.1	4.1	4.6	5.9	6.7	8.6	13.1	14.5	16.1	16.2	15.3	16.2	22.5	14.5	21.4

namely guide agricultural production and channel farm products among their various uses. How efficient would such a pricing system be? When put this way, there is still a strong presumption, in my judgment, that the pricing system would prove to be quite inefficient under conditions of the kind that have prevailed since 1910–14.

This takes us to the heart of the difficulty because there can be little doubt that it has been the unstable character of the economy that has undermined the pricing system. In its simplest terms what appears to have been happening has been a breaking apart of the network of prices connecting the decisions to utilize resources for production and the decisions to utilize products for consumption. This separation has come about as a result of inconsistencies that have emerged between the long and the short run when the aggregates of an economy are fluctuating widely. The commitments with regard to factors to achieve allocative efficiency in farming involve production plans that are essentially long run in nature relative to the kind of commitments that arise when processors and other handlers buy farm products with a view of marketing them to consumers. In an economy with a steady rate of development and with relatively little economic uncertainty—like the years,[11] say, from 1895 up to World War I—these two sets of decisions may be sufficiently integrated by the pricing system to give satisfactory results, approximating the economist norm based on a stationary state in equilibrium. Since 1910–14, however, the economy has been so unstable, economic uncertainty has bulked so large, and the fluctuations in farm

[11] It is significant that the *peaks* and *troughs* of the business cycles that Burns and Mitchell identify (in *Measuring Business Cycles*, Appendix A, Table A1) do not appear to have been important in farm price changes that occurred during the period 1894 to 1915:

	Stage of cycle	*Index of farm product prices*[a]
1894 (May, June, July)	Trough	60
1895 (Nov., Dec. & Jan. 1896)	Peak	59
1897 (May, June, July)	Trough	57
1899 (May, June, July)	Peak	61
1900 (Nov., Dec. & Jan. 1901)	Trough	74
1902 (Aug., Sept., Oct.)	Peak	82
1904 (July, Aug., Sept.)	Trough	81
1907 (Apr., May, June)	Peak	86
1908 (May, June, July)	Trough	87
1909 (Dec. & Jan., Feb. 1910)	Peak	107
1911 (Dec. & Jan., Feb. 1912)	Trough	97
1912 (Dec. & Jan., Feb. 1913)	Peak	99
1914 (Nov., Dec. & Jan. 1915)	Trough	98

[a] Warren and Pearson, *Cornell Memoir* 142.

prices [12] have been so violent and great that the pricing system could not integrate these two sets of decisions. As a consequence a gap has appeared in the network of prices. In short, conditions have been such that the pricing system has not been able to guide the allocative process in production efficiently and at the same time keep farm products moving into foreign and domestic markets at a rate consistent with short-run developments.[13]

Before turning to lines of inquiry that this formulation calls for, it will be useful to examine briefly some data showing the few, small changes in agricultural production compared to many large changes that have occurred in farm prices. The data in Table V are based on changes from the preceding year.

[12] Again taking the *peaks* and *troughs* of business cycles from Burns and Mitchell and relating these to changes in farm prices the wide swings appear to be very close:

	Stage of cycle[a]	*Index of farm prices*[b]
1914 (Nov., Dec. & Jan. 1915)	Trough	98
1918 (July, Aug., Sept.)	Peak	207
1919 (March, Apr., May)	Trough	210
1919 (Dec., Jan. & Feb. 1920)	Peak	227
1921 (Aug., Sept., Oct.)	Trough	128
1923 (Apr., May, June)	Peak	142
1924 (June, July, Aug.)	Trough	140
1926 (Sept., Oct., Nov.)	Peak	142
1927 (Nov., Dec. & Jan. 1928)	Trough	151
1929 (May, June, July)	Peak	146
1933 (Feb., Mar., Apr.)	Trough	59
1937 (Apr., May, June)	Peak	128

[a] *Measuring Business Cycles*, Appendix A, Table A1.
[b] U.S.D.A. Index numbers of Prices Received by Farmers, 1910–1943. Washington, D. C., February, 1944.

[13] After completing this chapter I had the privilege of reading Geoffrey H. Moore's Ph.D. thesis, *Harvest Cycles*, growing out of his researches with the National Bureau of Economic Research. I wish to call attention to Moore's findings by drawing briefly upon Chap. III of his thesis as follows: ". . . we can safely conclude that cyclical changes in business conditions are, on the average, a relatively unimportant cause of changes in the output of most of the more important crops in the four countries, or of total crop production in each country" (Chap. III, p. 2). As to prices Moore points out: "There is striking evidence in our materials that crop prices have consistently been deflated in severe business contractions and inflated in vigorous expansions, in the 19th as well as in the 20th century" (Chap. III, p. 24). "However . . . declines in crop prices tend to predominate in mild business expansions and rises to predominate in both mild and moderate contractions" (Chap. III, p. 29). ". . . The positive conformity of crop prices in long and violent business cycles is unquestionably a demand phenomenon" (Chap. III, p. 35). Moore asks why should crop prices have an inverted relation to the mild cycle, but he does not find a satisfactory answer although he sees a clue in changes in world crops relative to domestic crops. Moore also finds that "specific

TABLE V

Change from preceding year (in per cent)	*Agricultural production 1910–1946 (No. of years)*	*All farm commodity prices 1910–1946 (No. of years)*	*Crop prices 1910–1946 (No. of years)*	*Livestock and livestock production prices 1910–1946 (No. of years)*
+31 and more	—	2	3	2
+21 to +30	—	5	2	2
+16 to +20	—	2	2	4
+11 to +15	1	1	4	2
+ 6 to +10	4	6	4	5
from 0 to ±5	29	14	14	14
− 6 to −10	2	2	1	1
−11 to −15	—	1	2	2
−16 to −20	—	—	—	1
−21 to −30	—	2[a]	2[c]	2[e]
−31 and less	—	1[b]	2[d]	1[f]
Average variation (in per cent)	3.9	12.3	14.2	12.0

[a] 1931, 1932. [b] 1921. [c] 1932, 1938. [d] 1921, 1931. [e] 1931, 1932. [f] 1921.

At this point several tentative views with regard to farm prices and their instability may be indicated with the view that these may serve, at least, as working hypotheses for inquiry into this field.

1. The principal policy objective in this sphere should be to develop an efficient pricing system, efficient in performing two major functions, that of guiding allocative decisions in agricultural production and that of channeling farm products to consumers.

2. The pricing system is not an appropriate means for stabilizing income from farming over time. To place this burden on the pricing system, as has been done in recent years, can only reduce greatly its capacity to perform the two functions for which it is an appropriate means. Improving the personal distribution of income among families, and more

cycles in crop harvests pursue their courses almost entirely free of the influence of business cycles" (Chap. III, p. 65).

The Twenty-Seventh Annual Report of the National Bureau, *Stepping Stones Towards the Future*, Arthur F. Burns, March, 1947, pp. 42–46, includes a short statement on agriculture prepared by Geoffrey H. Moore.

especially its distribution over time, needs to be achieved by means other than prices.

3. Under fairly stable economic conditions (such as appeared to have prevailed from about 1895 to 1915, for example) the pricing system may succeed in integrating its two major functions.

4. Under distinctly unstable conditions (such as occurred after World War I, for instance) the pricing system loses its capacity to integrate the relatively long-run production decisions and the comparatively short-run decisions involved in the distribution and marketing of farm products.

5. To avoid this disintegration of the pricing system the first lines of defense are measures that will counteract business cycles and wars. This is, however, a big order and meanwhile other measures need to be developed to keep the pricing system from disintegrating under unstable economic conditions.

6. This formulation indicates that it may prove necessary, under unstable economic conditions, to approach the two functions that are properly the tasks of the pricing system separately, and develop for each appropriate policies and institutions, on the one hand, to guide the allocative process in agricultural production efficiently by such means as forward pricing and other new institutions to lessen the price uncertainty impinging upon farmers; [14] and on the other hand, to channel farm products into markets at home and abroad by freeing market prices.

3. Income

American agriculture, undoubtedly, is subject to many different kinds of instability, yet be it war or peace, business or weather, price or yield, there is the objective of reducing the instability of income from farming over time.[15] This objective focusing on income has not always been explicit—it nevertheless is the key to most of agricultural policy. It is evident in the political support for the McNary-Haugen proposals, the Federal Farm Board and the array of New Deal farm programs. Production control was advanced in the early thirties as necessary to adjust output to depressed and shrunken demand. As the limitations

[14] See D. Gale Johnson, *Forward Prices for Agriculture*, University of Chicago Press, 1947.

[15] In this chapter I do not consider several types of income instability of importance to individual farmers, namely that arising from variations in yields, inaccurate price expectations, and long run changes in supply of and demand for farm products.

TABLE VI

The period covered is from 1910 to 1946 except cattle and calves, hay, corn, sheep and lambs, wheat and potatoes, which are for 1910 to 1945

Changes in price (in per cent)	*Dairy products*	*Milk, wholesale*	*Livestock and livestock products*	*All crops*	*All commodities*	*Meat animals*	*Feed crops*	*Poultry and eggs*	*Cotton*	*Tobacco*	*Fruits and tree nuts*	*Cattle and calves*	*Eggs*	*Hay*	*Corn*	*Sheep and lambs*	*Food grains*	*Wheat*	*Hogs*	*Oil-bearing crops*	*Potatoes*
+31 and more	1	2	2	3	2	3	3	1	10	5	3	1	1	2	3	2	4	4	5	7	11
+21 to +30	2	1	2	2	5	3	4	4	—	5	2	3	5	3	6	—	3	3	2	2	2
+16 to +20	4	5	4	2	2	1	2	2	1	2	5	3	1	2	1	4	2	1	—	1	—
+11 to +15	3	2	2	4	1	6	6	4	1	1	3	4	5	2	4	5	5	5	4	3	3
+ 6 to +10	4	5	5	4	6	2	3	4	3	2	3	4	4	5	5	7	5	4	6	6	1
from 0 to ±5	15	14	14	14	14	12	11	11	10	10	10	10	9	9	7	7	6	6	5	5	3
—6 to —10	2	2	1	1	2	2	1	3	—	1	2	3	2	5	3	3	2	2	2	3	3
—11 to —15	2	2	2	2	1	1	1	3	4	5	2	2	5	2	1	—	4	5	2	2	1
—16 to —20	—	—	1	—	—	3	—	2	1	1	4	1	1	2	—	3	1	1	4	2	—
—21 to —30	3	3	2	2	2	1	1	2	2	4	—	2	2	2	1	1	1	1	2	3	4
—31 and less	—	—	1	2	1	2	4	—	4	—	2	1	1	1	4	2	3	3	3	2	7
Average deviation (in per cent)	10.2	11.6	12.0	14.2	12.3	15.1	17.8	12.2	22.1	18.2	15.6	13.1	13.2	13.9	21.0	15.2	17.9	18.0	22.1	20.6	35.2

of production control became apparent, the emphasis shifted largely to measures to maintain farm prices—commodity loans for the "basic commoditieis" dramatized as the Ever-Normal Granary after the drastic droughts of 1934 and 1936; following this came price supports to mobilize agricultural production for war and to protect farmers during the transition. Throughout all these efforts, like a red thread, runs the objective of stabilizing the income from farming over time.

There is no denying that income from farming has been extraordinarily unstable during the last four decades, more unstable than farm prices. The following data make this quite evident:

1. Comparing agricultural and non-agricultural [16] changes in production, prices, and income from the preceding year since World War I.

TABLE VII

	Agricultural production	*Non-agricultural prices*	*Non-agricultural income*	*Agricultural prices*	*Agricultural income*	*Non-agricultural production*
Average annual deviation in per cent	3.9	7.3	11.2	12.3	14.0	15.0

2. Changes in income from preceding year

TABLE VIII

Changes in per cent	*Non-agricultural income (1910 to 1944)*	*Agricultural income excluding govt. payments (1910 to 1945)*
+30 or more	—	3
+21 to +30	2	3
+16 to +20	6	2
+11 to +15	4	3
+ 6 to +10	8	7
from 0 to ±5	8	11
− 6 to −10	2	—
−11 to −15	1	2
−16 to −20	2	1
−21 to −30	1	1
−31 and less	—	2
Average deviation (in per cent)	11.2	14.0

[16] See also Table XX, page 214, "Cyclical Movements in Per Capita Farm and Non-Farm Income," in *Agriculture in an Unstable Economy*, McGraw-Hill, 1945.

3. The income instability for groups of farm products and for major products, again in terms of changes from the preceding year, are given in some detail below (see figures in Table IX).

The income problem, of course, has several different facets. The income in many parts of agriculture is very low, a problem that is closely intertwined with the low efficiency characteristic of so much of agriculture outlined in some detail in the preceding chapter. The wide inequalities in the personal distribution of income also present basic difficulties because of its bearing upon the widespread substandard medical, hospital, housing, and educational facilities and poor diets that prevail. The very uneven distribution of income over time is still another acute problem in agriculture. It is this characteristic of income from farming on which we have been focusing. Our concern, moreover, has been restricted to that overall instability in farm income originating out of the short and sudden fluctuations of the main economic aggregates attributable to the unstable performance of the non-agricultural sector of the economy, that is, the more violent swings caused by certain business cycles and by wars.

At this point we shall pull together the threads and indicate briefly in closing the frame of reference and the working hypotheses that appear to us to have promise in analyzing the instability of farm income over time.

1. Lessening the instability of farm income has become a basic policy objective in the United States. This objective has significance and merit on social, political and economic grounds.

2. To achieve this desired stability in farm income the government should not undertake programs that make agricultural production unstable.[17] Production control is not an appropriate means for counteracting the adverse income effects of business depressions and of wars and the aftermath of wars on agriculture.

3. Nor should farm prices be maintained at a particular level in the market place in order to stabilize farm income over time. Price maintenance programs of this type are not appropriate means for counteracting wide swings in aggregate demand caused by unstable conditions in the non-agricultural sectors of the economy.

4. Income-stabilizing programs are too heavy a burden for the pricing

[17] Production adjustments, however, are required on efficiency grounds, and these adjustments call for certain public policies and action. Measures to aid underemployed persons in agriculture to transfer to other occupations, to lessen capital rationing, and to reduce soil losses are of this type.

TABLE IX

Period covered is from 1910 to 1945 except for cattle and calves, eggs, sheep and lambs, wheat, potatoes and corn, which cover 1910 to 1944

Changes in income (in per cent)	*Dairy products*	*Meat animals*	*Fruits and tree nuts*	*All commodities*	*All crops*	*Livestock and livestock products*	*Cattle and calves*	*Eggs*	*Hogs*	*Poultry and eggs*	*Food grains*	*Cotton*	*Tobacco*	*Sheep and lambs*	*Feed crops*	*Wheat*	*Oil-bearing crops*	*Potatoes*	*Corn*
+31 and more	1	5	4	3	3	3	4	5	8	5	7	7	10	2	6	8	9	11	7
+21 to +30	5	2	3	3	6	3	2	1	1	1	2	4	1	4	1	3	2	3	7
+16 to +20	1	4	2	2	—	3	3	2	2	2	2	1	1	—	2	1	2	—	2
+11 to +15	4	1	4	3	2	1	6	4	1	3	2	3	4	9	6	2	2	1	—
+ 6 to +10	5	3	5	7	5	7	3	3	3	6	3	2	—	4	2	2	4	—	2
from 0 to ±5	14	13	11	11	11	11	9	9	9	9	8	8	7	7	7	6	5	3	3
— 6 to —10	1	2	2	—	1	2	2	6	4	5	3	1	6	1	3	3	2	2	3
—11 to —15	1	—	—	2	2	1	—	—	2	—	2	—	2	1	3	2	3	2	1
—16 to —20	1	1	1	1	1	1	1	1	1	1	—	1	—	2	1	1	2	3	3
—21 to —30	2	2	3	1	2	2	3	2	1	2	2	2	2	3	2	2	2	5	2
—31 and less	—	2	—	2	2	1	1	1	3	1	4	6	2	1	2	4	2	4	4
Average deviation (in per cent)	11.0	15.4	14.2	14.0	14.8	13.3	15.2	15.7	19.1	14.7	19.7	23.1	21.6	15.1	18.7	23.7	26.1	35.5	27.5

system to bear if it is to function efficiently in guiding agricultural production and in channeling farm products to consumers.

5. To lessen the instability of farm income and to do it in ways that will not burden the pricing system, it will be necessary to find ways and means for transferring income to farmers during periods when aggregate demand becomes depressed.

6. These income transfers should meet the following conditions: (1) they should be strictly countercyclical in design, (2) they should not induce production decisions in agriculture inconsistent with long run requirements, and (3) they should not clog the channels of trade.

9

Conditions Necessary for Economic Progress in Agriculture

IN A CONSIDERATION of the economic problems that confront agriculture there is much wisdom in a return to the classical tradition of treating these problems within the context of the political economy. In our division of labor in professional effort we have departed from this tradition, and our work has been weakened as a consequence. The older economists were deeply concerned about agriculture. They did not, however, make the mistake of treating agriculture in isolation, as if it belonged in another category to be studied, one might be led to suppose, by a different set of analytical models and presumably, largely by surveys and statistics. Such procedures certainly are not in keeping with what the older economists did as they put together an engine for economic analysis and laid down a roadbed for policy. On the contrary, their major premises and the basic policies that emerged were heavily weighted with agricultural affairs. This is evident when we consider the attention they gave to the production of food, the distribution of rewards to factors, particularly to rent and land. Whether our analysis pertains to labor, finance, trade, agriculture, or any other problem sphere, we will do well to formulate our approach in terms of the economy as a whole. We need especially to view agriculture as an integral part of the political economy and not as a series of particular farm problems treated as if they were self-contained.

As a preliminary step it is necessary to re-establish a more comprehensive frame of reference for considering the economic problems in agriculture. The main elements of classical thought on agriculture and food are, of course, well known. Out of the work of Malthus and Ricardo and their contemporaries there emerged two major propositions of critical importance in determining the demand and supply of food: in a developing society there were (1) the nature of the growth of population and (2) the nature of land as a critical factor in agricultural

production. The analytical consequences of these two "natural laws" are well preserved in our literature. To put the effects simply, it meant that the demand for food outran the supply until the growth of population was checked by some kind of subsistence level. From these two propositions, one pertaining to population and the other to the production of food, there was developed a consistent body of thought which made explicit the implications of these two sets of expectations to the political economy as a whole. This body of thought had a wide influence on public policy of most of the western countries up to about World War I.

The developments both in the growth of population and in agricultural production during the inter-war years did not, however, conform with the expectations of classical thought. It is now quite clear that secular diminishing returns in agriculture are no more necessary in a developing economy than they are in industry. Advances in the state of the arts have given us secular increasing returns for human effort in agricultural production as they have in other segments of the economy.[1] Nor is land necessarily the strategic factor in the production of food in view of the advances in farm technology. We now know that other resources, both labor and capital, can be substituted for land over a wide range. The effective rate of substitution was demonstrated during the decade prior to World War II in what happened when the Agricultural Adjustment Administration tried to curtail output through the use of acreage allotments. The AAA was quite successful in curtailing the acreage devoted to such basic crops as cotton, tobacco, corn, and wheat.[2] But production, instead of dropping, actually increased, except in the case of cotton.[3] What took place, in substance, was that farmers had at hand many ways of substituting other inputs for the acres that were taken out of these crops, and in the case of corn they also planted substitute crops; as a result they increased the yields on the acres that remained and expanded the output of substitute crops sufficiently to increase production. One further observation: in recent decades, cer-

[1] For a treatment of this point see author's "Diminishing Returns in View of Progress in Agricultural Production," *Journal of Farm Economics*, Vol. XIV, October, 1932.

[2] In 1931–33 without AAA the acreage in corn, wheat, cotton, and tobacco in the United States averaged 218.5 million acres, while in 1940–42 with AAA it averaged 173.0 million acres, a drop of 21 per cent. Some of this reduction, however, is to be ascribed to the after-effects of the drought years.

[3] Cotton acreage was cut nearly two-fifths, which was sufficiently large to have caused a small reduction in output.

tainly during the period between the two world wars, the rent claims of land in agriculture have, if anything, declined relative to the claims of other factors. Rent in agriculture certainly has not acquired the economic and social significance which the older economists expected.

The developments on the side of the demand of food have been no less far-reaching. The growth of population in most western countries has taken a turn which makes it necessary to restate basic premises about the future course of population growth.[4] The Malthusian formulation, although it still is applicable to some parts of the world, no longer applies to most western people. The demand for food is not being driven by over-population to some ultimate subsistence level. Instead of hungry mouths begging for food we have agricultural surpluses begging for markets.

1. Preliminary propositions

Changes in agricultural production and in the growth of population have made the propositions formulated by Malthus and Ricardo of secondary importance in analyzing the production and consumption of food in western countries. We need, therefore, to ascertain anew what are the predominating factors that determine the value of food in a developing economy of the type that appears to lie ahead.

I would start essentially where Malthus left off, that is, take the expected change in population as one element, but attach primary importance to the behavior of people in satisfying their wants for food as they become richer. I do this because of the significance of (1) the rise in real incomes of people, and (2) the decline in the proportion of the income that is spent for food as incomes rise. Because changes in income, and not changes in population, have become the primary factor in this problem, I have found it necessary to make the income elasticity of food the keystone of the arch of my analysis of changes of the demand of food in a developing society. Lesser stones in this arch are the changes in the numbers of people, changes in taste, advances in our knowledge of nutrition, public measures for subsidizing consumption, and changes in the extent of the market for food. On the supply side I attach first

[4] See especially Frank W. Notestein and others, *The Future Population of Europe and the Soviet Union* (League of Nations publication, 1944). Also, Warren S. Thompson and P. K. Whelpton, *Estimates of Future Population of the United States, 1940–2000* (U. S. National Resources Committee, 1943); and M. C. MacLean, "Projection of Canada's Population on the Basis of Current Birth and Death Rates, 1931–1971" (*Canadian Papers,* Vol. IV, Yosemite Conference, Institute of Pacific Relations, 1936).

importance to the rate of progress in farm technology in ascertaining the effects of secular changes in agricultural production. I would define the rate of progress in farm technology in terms of the gain that is made in output relative to the inputs expended in agricultural production. We need to take cognizance of the fact that we are in the midst of an agricultural revolution growing out of the many labor-saving techniques that are being introduced into farming. These advances in technology are still in process. They are still far from being spent. It will take decades before they have been diffused and transmitted from the more advanced farming areas to the more backward areas within a country, and from the countries that are favored with advanced farm technology to those that are less progressive.

The main assumptions underlying this formulation, of what has become increasingly a farm problem rather than a food problem, is that *as people become richer and as agriculture becomes more efficient, it is the low income elasticity of food and the rapid progress in farm technology that must be reconciled.* Does our economy have the capacity to equilibrate the supply and demand of food under these circumstances? How may we improve the capacity of our economy to make the necessary adjustments? This is the key to the farm problem looking to the structural changes that are required in a developing economy.

A simple example will illustrate the main elements of this problem: if the income elasticity of food were to drop from 0.5 to 0.25 (in terms of the food purchased by consumers minus the cost of the services that have been added to farm products) as incomes rose 20 per cent, the consumption of farm products would accordingly increase 5 per cent instead of 10 per cent. This example assumes no change in the number of people or in relative prices. If we assume further that the technological advances measured in terms of output per worker which made possible the rise in incomes were evenly distributed, that is, the advances in agriculture were as rapid as but no more so than in other fields, and still assuming no change in population or in relative prices, the production of farm products would increase 20 per cent. Under these conditions it would be necessary for the population to increase at least 15 per cent during the decade to absorb the difference, whereas had the income elasticity remained at 0.5 all the additional food resulting from the advances in farm technology would have been absorbed with a 10 per cent increase in population. If, however, along with an income elasticity of food of 0.25 (1) the rate of population growth is less than 15 per cent, (2) the natural increase in population in agriculture exceeds that

occurring in other parts of the economy, and (3) the rate of progress in farm technology is greater than that in other fields, the extent of disequilibrium between production and consumption of food is accentuated accordingly.

2. Necessary conditions

We are now prepared to outline the conditions that are necessary for economic progress in agriculture. In several respects the purpose as stated is too broad to be adequately treated in the compass of this chapter. It will be necessary to omit the supporting analyses, as well as numerous secondary considerations. In this section I shall deal with the secular characteristics of a developing economy, and in the next section with the impact of the cyclical behavior of business on agriculture. The empirical setting is chiefly that of the United States. Nevertheless, the inferences that emerge are applicable to Canada and to other countries that have a relatively high and rising standard of living and an advanced agricultural technology that is becoming increasingly more efficient.

Economists have been prone to formulate the agricultural problem in a short-run context, which has placed the emphasis on market gluts, chronic surpluses, and low farm prices. These are, however, only surface manifestations of more fundamental dislocations. Disregarding wars and cyclical fluctuations, there has been a persistent disequilibrium affecting agriculture. This disequilibrium has been caused by an excess supply of resources in agriculture. Low farm prices are a result, so are the unfavorable terms of exchange to agriculture, and so is the decline in the rewards to factors employed in farming. The excess supply of resources in agriculture is primarily labor. For reasons that will be touched upon later, other resources are either not of major importance or are not in an excess position in the more general disequilibrium. The key to the problem at hand is the maldistribution of the labor force which has been persistently adverse to workers in agriculture.

Let me restate briefly the nature of the primary forces that give rise to this disequilibrium. To put it as a question with the focus on the labor force: What has caused the maldistribution in the supplies of labor to arise and persist? Perhaps the best way to give the basis for an answer is to show under what conditions no excess supply of labor would accumulate in agriculture. If over the years as income rose (1) the income elasticity of food were high, (2) the population were to increase rapidly (and let us suppose there were no natural increase in the farm

population), and (3) technology employed in farming were at a standstill—under such circumstances it is obvious it would be necessary to transfer labor into agriculture; or to put it another way, the distribution of the labor force would become adverse to laborers in the nonagricultural sectors of the economy. Patently, these are not the conditions that have prevailed or are likely to prevail. We are in a stage of economic development in which the main features that govern the agricultural situation are approximately as follows: the income elasticity of farm products not only is low, but it probably is declining; the rate of population growth is small and is slackening, while the natural increase in farm and rural areas is still decidedly greater than it is in towns and cities; and farm technology is rapidly forging ahead. Moreover, there are indications that each of these developments will continue to operate with increasing emphasis.

A word of explanation is needed at this point to show why it is that a general disequilibrium of the type described expresses itself primarily in an excess supply of labor. In the first place, labor constitutes the bulk, probably more than three-fifths, of the resources employed in farming in countries like Canada and the United States. In the second place, the type of progress that we have had in farm technology has made new capital forms, for example, power-driven farm machinery and equipment, highly productive; thus, in spite of the excess supply of resources employed in farming, returns from these new types of capital have been high (at the margin where such new capital forms are applicable), and they accordingly have been increased. In the third place, the process of disinvestment in "land" is usually exceedingly slow. Rents, of course, drop, and the capitalized value of land is reduced. But most of the land stays in production. But this is not all. The advances in farm technology, in many instances, have had the effect of not only holding but actually drawing additional land, low in productivity, into cultivation. (The new technology, in such cases, has made submarginal land not only marginal but often a claimant of some rent.) Thus the main burden of equilibrating the excess supply of resources in agriculture falls primarily upon the labor force because it is quantitatively important, because it is transferable, and because the advances in farm technology have been decidedly labor-saving in their effects.

The changes that have taken place in the division of the working population between agriculture and other occupations is an indication of the part that labor plays in the adjustment process. The statistics on this point are highly conclusive. The proportion of the labor force

engaged in agriculture has been declining, not only in the older industrial countries of Europe, but also in the newer, more largely agricultural countries, and also in parts of the Orient. The decline in both Canada and the United States is instructive. Since 1900 the proportion of the working population in agriculture has dropped from 37 to 15 per cent in the United States, and from 40 to 22 per cent in Canada. The striking fact is the universality in this decline. Moreover, it has been going on for many decades. Nor are there signs that it has run its course. On the contrary, there are many reasons for believing that a decade or two hence the proportion of labor force needed on farms to produce agricultural products may be far below present figures. Take the United States: although the war has brought the labor force in farming down to 15 per cent, it still is much too large if earnings in agriculture are to become even approximately comparable to those in other fields. The war has shown us the extent of *underemployment* in agriculture. Yet, in spite of an unprecedented transfer of labor out of agriculture, the primary over-population of American agriculture (mostly situated in the Southern States) had hardly been touched.[5] It remained very large indeed.

I can merely touch on the necessary remedial measures for treating the underemployment of labor in agriculture caused by a secular economic development of the type that has been described. I would put the end to be achieved thus: a national agricultural policy should have as its primary goal the attainment of an optimun distribution of the labor force, with special emphasis upon reducing the excess labor supply in agriculture. How may this be accomplished? Certainly not by merely storing surplus crops or by dumping farm products abroad, or by any of the many forms of price discrimination. Nor do production control and support prices necessarily contribute to this end.

First, there are those measures which would either deflect or alter the forces which bring about the adverse distribution of labor. Is it possible to increase the income elasticity of food, for example? Better nutrition would probably help expand the demand for food. It would mean that people would give a higher preference to nutritious foods. But not all deficiencies in nutrition are caused by too little food, for some of it is the result of the particular combination of foods in the diet. In the main, however, with prevailing food habits and taste, correcting the combina-

[5] In many important respects there is a striking similarity between Eastern Canada and the South in the United States in the causes and scope of the excess supplies of labor in agriculture.

tion has meant the use of more expensive foods, and accordingly, more food is consumed and the foods that are added or consumed in additional amounts have the higher income elasticity. As our nutritional knowledge advances, however, it is not unlikely that it will be found that better nutrition may also be attained, in many instances, by shifting to lower cost foods. To the extent that this occurs, adequate diets will be attained at less cost, and thus fewer agricultural resources will be required to produce the food.

Greater equality in the distribution of income among families would certainly enhance the income elasticity of food. So would measures to subsidize the consumption of food. But all these means, it would appear, are not likely to stop the general drift over the decades to a lower income elasticity for food as people become on the whole richer. The fundamental nature of this drift should, however, in no way distract from the merits of measures to improve our nutrition, to equalize incomes, and to subsidize the consumption of certain foods. Such measures do improve the diets of families, especially of those in the lower income groups. (The fact that a small proportion of our resources is required to produce food and the further fact that food supplies are likely to be in an excess position secularly means that as a society we can better afford diets that are both nutritious and tasty.) But even with these advances in social measures favoring food consumption there will still be the basic task of reconciling the slow growth in food consumption with the more rapidly expanding production of food.

Next, let us take improvements in the state of the arts. I doubt if anyone would propose that we should hold the advances in farm technology in check. In agriculture, especially in the United States, research in the sciences contributing to agricultural technology not only has been socialized but it has been institutionalized through the Agricultural Experiment Stations in the states and in the Department of Agriculture.[6] In addition, the dissemination of research findings is being pushed in each state through the Agricultural Extension Service. Furthermore, the competitive structure that still prevails in agriculture is highly conducive to the introduction of new technology. In my judgment all this certainly should go forward. Instead of stopping or curtailing it, our task as political economists is to find ways and means by which society can absorb and thus take advantage of these gains.

[6] Public expenditures for agricultural researches in the United States exceeded 40 million dollars yearly at the end of the thirties, and what is more, this large "imput of resources" may well have given returns to society much higher than do expenditures in most productive efforts.

I doubt if any comment needs to be made about the outlook for changes in our population growth. Population studies and their conclusions are well known.[7] There is general agreement that, for at least the next several decades, the shape of our population curves is likely to level off.

Second, there are those measures which would reduce the excess supply of labor in agriculture. By all odds the most important of them all is an expansion in non-agricultural industries. It is necessary for secondary and tertiary industries to grow much more rapidly than agriculture because of the higher income elasticity for the products and services of non-agricultural industries. If we take the past experience of the United States, it appears that a rate of expansion in non-agricultural industries between two and three times as large as that occurring in agriculture is required to approximate a favorable situation for absorbing the excess supply of labor which accumulates in agriculture.

Agricultural output is not likely to decline, even though farm prices become quite unfavorable. The gradual introduction of better practices will still go forward. In the United States it is not unreasonable to suppose that during the first decade after World War II agricultural production may expand as much as 2 per cent per year. The basic necessary condition for the long-run economic progress of agriculture is a rate of expansion in secondary and tertiary fields sufficiently large to absorb the underemployed resources that accumulate in agriculture as a consequence of the advances in farm technology, the large natural increase in farm population, and the low income elasticity of food.

There are also a number of complementary measures which should be mentioned. If farm incomes were to rise, more leisure on the part of farm people might go a long way in absorbing the excess supply of labor in agriculture. How may farm people be induced to trade at least some of this accumulating excess supply of labor for additional leisure? High farm incomes during war, when every worker is expected to do his utmost, are not conducive to making the kind of adjustment that adds to leisure. In peacetime, advances in farm technology, once most farmers have introduced the improved practices, usually lower farm prices and awards to factors; and, because of the long lag in the transfer of resources, the effect is that farm incomes fall, which certainly operates against an expansion of leisure on the part of farm people.

[7] See footnote 4.

Investment in the human agent, by public measures, can also facilitate the transfer of labor out of agriculture. Such investments (in the form of education, medical facilities, nutrition, etc.) are likely, on the one hand, to improve the productivity of the human agent and, on the other, to add substantially to his mobility. There is need also for more useful information. The least that can be done in this respect is to provide working people with more adequate information about employment opportunities.

There are also many things it is wise to avoid. Let us not repeat the mistake which many countries made after World War I, when governments undertook programs designed to put large numbers of returning soldiers on the land. (The settlement of soldiers on small parcels of land for reasons of health is on a wholly different footing.) Few of the many open spaces which still exist in countries like Canada and the United States are equivalent to economic opportunity. Agriculture, it should be evident from the preceding analysis, is a shrinking segment of the economy. There are powerful and persistent forces at work which cause it constantly to be over-populated in terms of economic opportunities. The belief that what we need is more subsistence farming is also a false solution. A country may find it necessary to promote subsistence farms as a relief measure when it is confronted by mass unemployment, but such a program is not consistent with the long-run welfare of people. One needs also to mention the many barriers to internal migration. The movement of people from farms is already made all too difficult by cultural, traditional, and other institutional obstacles.

Up to this point we have not considered the effects of international trade, nor can we do more than touch upon them here. International trade, on the one hand, extends and enlarges the capacity for the economy to adjust to the secular developments which we have been discussing. On the other hand, it gives rise to additional and some very serious difficulties. There are: (1) the effects of the differences in the rate of technological progress in agriculture among trading countries, (2) the effects of the differences in the income elasticity among the various farm products, and (3) the extent to which a country is in a position to transfer labor resources out of agriculture.

A serious difficulty arises when a country does not have a combination of resources which permits it to transfer labor out of agriculture. This situation is of critical importance in the case of a number of countries producing and exporting agricultural products. The nature of this

problem can best be seen by stating the conditions that create it. If a country is primarily agricultural, dependent largely on a single crop, and does not have the capacity to industrialize, it is not capable of absorbing the excess supply of labor in agriculture resulting from an introduction of labor-saving farm technology without a loss in income.

Let us suppose that a trading country is primarily agricultural and dependent on one crop which is exported; that this crop is an inferior good, namely, has a negative income elasticity; that incomes are rising; and, that substantial advances are being made on the technological side in the introduction of labor-saving techniques in all countries producing the crop. What are the economic consequences of a situation of this type? Unless labor resources are transferred to other countries, per capita incomes would fall. How is Cuba, for example, to adjust as a producer and exporter of sugar without suffering a real loss in per capita income unless large numbers of workers migrate to other countries? In many respects the situation in most Danubian countries, where most of the working population is engaged in agriculture, and where it is difficult to industrialize, presents a similar problem. Countries of this type are caught in an international technological squeeze. The primary adjustment required involves a transfer of a considerable part of the labor force out of agriculture, and this requires migration to other countries which are better situated to expand secondary and tertiary industries. A country with a very considerable industrial potential can correct the disequilibrium by internal migration. This is the case in the United States, Russia, and has been historically the situation in Great Britain and, in the main, also in Canada. But there are several countries which are heavily burdened by these developments in food production and consumption.

3. Compensatory income payments when mass unemployment occurs

In this section I shall take up the cyclical problem as it impinges on agriculture. The main agricultural effects of fluctuations in business are as follows: (1) farm prices move in close sympathy with the fluctuations in business, although the amplitude of the movement of farm prices is greater than that of prices generally; (2) farmers do not curtail their production efforts during a depression; if anything, more effort is put forth; (3) the distribution of the labor force is worsened, for as farm prices fall cycle-wise not only fewer persons leave agriculture but a net migration to farms may take place.

These are the salient economic characteristics of the ways in which

the cycle affects agriculture. By examining these effects insight may be had as to appropriate policy. Take first the paradoxical fact that since World War I the transfer of labor resources into and out of agriculture has not been consistent with changes in farm prices. As farm prices fell more people stayed in agriculture, and as farm prices rose, the migration from farms increased; and the more farm prices increased, relative to other prices, the greater became the movement of persons out of agriculture. For example, during the early thirties, as farm prices fell relative to other prices, the movement of people from farms not only dwindled but actually reversed itself. The developments since 1939 are equally striking. Farm prices in the United States had doubled and farm income had tripled by 1943. Although this rise was greater than that of other prices and incomes generally, there occurred an unprecedented migration of persons out of agriculture. Is it not an economic paradox to see people leave agriculture as farm prices advance and as farming becomes more profitable? Yet, such are the facts of the last twenty-five years. Our conclusion is that the mechanism of relative prices, in this particular sphere, looked at cycle-wise, has not been effective in bringing about the necessary transfer of labor resources. The movement of labor resources into and out of agriculture has not been consistent with changes in prices. The cause for this paradox is that another economic force has superseded the effects of changes in relative prices. The availability or non-availability of jobs has been the dominating force. The gap between the earnings of workers engaged in agriculture and those employed in industry has been very wide, so wide that the relative prices of the products which each produced have been quite inoperative in bringing about a transfer of the excess labor in agriculture. The determining factor has been jobs.

Next, let us note the production efforts of farmers during a business cycle. As a depression unfolds, business curtails its output and unemployment spreads. Agriculture, however, does not reduce its production efforts. Is this stubborn non-conformity of agriculture an asset or a liability? There is a school of thought which holds that it is desirable to make agricultural production a variable, adjusting it downward when demand drops and upward when the demand is strengthened by the cyclical behavior of the rest of the economy. This view is very shortsighted. The steady output effort of agriculture, year after year, regardless of the performance of industry and in spite of the wide fluctuations in purchasing power of consumers, is indeed an asset rather than a liability to the economy as a whole. Much of the farm problem that

loomed so large in the years between the two wars was not caused by maladjustments within agriculture, but by the erratic performance of the rest of the economy. The remedy, therefore, did not lie in agriculture, not in curtailing the output of food, feed, and fiber, but in attaining, first, an expanding and, second, a steady production on the part of the rest of the economy which entails not only internal but also external trade.

We now are ready to return to a consideration of farm prices. In agriculture it is plain that the primary dislocations caused by the cycle arise out of the fluctuations in farm prices, not because those price fluctuations bring about major contractions or expansions in agricultural production effort, but because of the instability in farm incomes that results. The key to this problem as it affects agriculture is in the instability of farm incomes. To the extent, therefore, that agricultural policy turns away from production control to policy measures designed (1) to preserve and even enhance the steadiness of agricultural production and (2) to maintain farm incomes and, thus, when necessary, offset the adverse effects of fluctuations in business on farm income—it clearly represents a desirable shift in policy objectives.

Elaborate programs have emerged to support farm product prices. With this development there has come a shift in agricultural policy away from production control measures of the AAA type to price programs.[8] There is much to be said in favor of the greater reliance that is being placed on price policy to shape and guide the allocation of resources in agriculture; yet, the particular program of support prices that has been evolved is exceedingly defective. Its defects are of two types: (1) the nature of the price commitments that have been made and (2) the objective of keeping market price from falling below the support price. It is chiefly with reference to the second of these defects

[8] This new and greater emphasis on prices may well have far-reaching implications in reshaping agricultural policy. It is a desirable and much needed shift in emphasis, for it once more places the mechanism of relative prices in a strategic position as a means for guiding and directing the allocation of resources in agriculture. The success of price techniques during the war to induce farmers to increase their production efforts and to curtail the output of some products in order to expand the output of others is not likely to be passed unnoticed. The support prices of the Department of Agriculture when announced prior to the time farmers made their production plans accomplished two things: (1) they greatly reduced the price uncertainty confronting farmers and (2) they made much more precise the exact price position of each farm product relative to all the others—consequently gave farmers a more exact idea of what products were needed most urgently and with less uncertainty ahead brought forth a greater effort to expand production.

that we are concerned in this examination of measures that are appropriate for dealing with the cyclical problem and its impact on agriculture.

Support prices, as they now stand (legislation directing their use in the United States), are not an appropriate instrument for countercyclical policy in the agricultural sphere. Support prices, as we have already indicated, have two purposes: to lessen the price uncertainty confronting farmers, an aim which they may serve well; and, to protect farmers from adverse demand developments, an aim which under present legislation they are not likely to attain. The principal difficulty of support prices now in effect arises out of the fact that the government is obligated to keep the market price from falling below the support price. From this it follows, that whenever the demand and supply situation is such that the market price seeks a level below that of the support price, the government must take steps which will keep the prevailing market price from dropping. As a result, during a depression, when consumers' purchasing power shrinks and prices drop (farm prices are very sensitive to changes in business conditions), measures that keep market prices from falling below the support price will disrupt both internal and external trade, unless it should happen that the measures employed by the government create enough additional demand to equilibrate the supply at a price at least as high as the support price.[9]

The difficulties inherent in support prices make it necessary to reformulate the purpose of price policy for agriculture. There are two primary objectives that appear to be appropriate in pricing farm products: (1) to improve the allocation of resources in agricultural production and (2) to maintain farm income when the aggregate demand falls as a consequence of a depression in business. It is with the second of these two objectives that we are concerned in this section.[10]

A *system of compensatory price payments* to farmers employed as a

[9] Whether or not this is possible would depend primarily (1) upon the level of the support price and (2) upon the depth of the depression (assuming the flow of supplies of farm products to remain constant). Obviously, the lower the support prices, or the smaller the difference between the market price during a depression and the support price, the easier it would be to create sufficient additional demands to clear the market; but also, the less effective the support price in maintaining farm incomes during a depression. The perishability of many farm products is such that it is quite impossible to carry out the specific commitment of keeping market prices of such perishable farm products from declining below the support price.

[10] To accomplish the first objective it may be necessary to establish a system of forward prices to shape and guide agricultural production and to lessen the excessive amount of price uncertainty that prevails in agriculture.

countercyclical measure appears to be required to lessen the adverse farm income effects caused largely by the erratic performances of the non-agricultural sector of the economy—instead of using programs to control and adjust agricultural output to fit the cyclical fluctuations in demand of farm products, or of using support prices to keep market prices from falling below specified levels.

The main features of this proposal [11] for a system of compensatory price payments to farmers when a depression strikes are as follows: the compensatory price payment is intended to offset the drop in prices received by farmers (all or as large a part as public policy may find adequate) caused by a business depression and unemployment. A compensatory price payment in this context is defined as a payment equal to the difference between the market price at the time a farmer sells his product and the pre-depression price (or such part of the pre-depression price as public policy deems appropriate). The compensatory price payments are to be made by the government to farmers as soon as the depression starts. The compensatory price payments are to go into effect when unemployment has reached a specified level,[12] namely when, cyclical-wise, the demand for farm products is being curtailed (the amount of curtailment to be permitted before initiating compensatory price payment to farmers is a matter of public policy). The compensatory price payments are to be discontinued when (1) unemployment is reduced to the specified figure or (2) the market price equals or exceeds the pre-depression price. The pre-depression price is here defined as follows: without a system of forward prices in agriculture, it would be the market price that prevailed during the period immediately preceding

[11] The necessary setting for this proposal is as a part of a comprehensive counter-cycle policy. It certainly is not sufficient to undertake merely a single measure of this kind. When, however, it is formulated and instituted along with similar measures for the industrial sector, it becomes part of a more general anti-deflationary policy which if it is applied would minimize the necessity of compensatory price payments to farmers.

[12] There are, of course, several alternative indicators of developing cyclical unemployment. In principle the indicator should be sensitive to economic fluctuation of the type under consideration. Unemployment figures, as such, are far from satisfactory. Changes in income payments have real merit. Factory payrolls, however, are better in one important respect: they quickly reflect conditions in industry generally. Industrial production is still another measure. A combination of these, always making allowances for secular developments, may prove most useful. However, whatever indicator is to be used, it should be a measure of the performances of the non-agricultural sectors of the economy and not of agriculture itself. It cannot be a set of parity prices based on some historical formula of the 1910–14 type.

the time when the compensatory price payments are to be undertaken; and with a system of forward prices, it would be based on some minimum forward price (some large fraction, 75, 80, or 85 per cent, of the true forward price).

Without further elaboration of the theory [13] and procedure underlying a system of compensatory price payments to farmers, it would appear that this approach to farm-income maintenance would accomplish the following: (1) It would leave market prices free to clear whatever supplies are marketed and therefore it would not interfere either with internal or external trade. (2) It would permit the prices of farm products and accordingly the price of food to drop during a depression.[14] (3) It would entail a claim for governmental expenditures during a depression, and the amount would increase as the depression deepened, namely as farm prices fell. (4) Compensatory price payments would go primarily to families in the lower income brackets because most farm families receive low incomes. (5) It would not curtail agricultural production when a business depression gets under way and reduces the demand for farm products. (On the contrary, it might have the effect of increasing somewhat the output of farm products during periods of depression.) (6) Nor would this approach permit major distortions in the relative prices of agricultural products to occur as a consequence of a recession in business. (7) It would maintain the demand of farm people for industrial and other products.

There are also some obvious difficulties in administering a system of compensatory price payments. In the early post-war period, farm prices will be badly out of line with other prices. It may require considerable time to meet relief needs, to build normal carryovers, and to bring about the necessary transitional adjustments, on the part of both industry and agriculture, adjustments that are consistent with long-run peacetime developments. Until this occurs it may be premature, at least it will be exceedingly difficult, to ascertain and isolate the cyclical fluctuation from necessary structural adjustments in going from a wartime to a peacetime economy.

[13] Yet, it should be noted again that this proposal is conceived as an integral part of a more general counter cycle policy to attain economic stabilization.

[14] If compensatory price payment induces farmers to increase production somewhat, to that extent it would contribute to lowering the price of food to consumers during a depression. There is also the possibility that farmers may withhold less products than they otherwise would during some stages of a depression, and this, too, would have the effect of making food somewhat cheaper during that phase of the depression.

The fundamental element in this proposal may be restated thus: it is decidedly counter-cyclical in its general effects, and it preserves that very valuable characteristic of agriculture of continuing in full production during a depression.

PART III

Economic Development and Policy

10

Changes in Economic Structure

Did world war II alter significantly the economic structure of these United States, or did it for the most part simply accelerate structural changes already underway? My guess is that it was chiefly the latter. Once we have gained historical perspective we may well find that the war did not introduce any important new structural changes as far as American agriculture is concerned. We are, I believe, prone to make altogether too much of the impact of the war. The basic forces reshaping agriculture in this country have not been diverted or even altered appreciably. We fall into the error of overemphasizing the war largely because we are still too near to the events. For several years farm prices pounded hard against their ceilings. Food was in short supply, and the balance of economic and political forces gave agriculture high prices and large incomes. These developments bred much optimism—an optimism which assumes that with our new found employment, productivity and income farm people will continue to prosper with the best of them. I do not wish to imply here that the war did not occasion important achievements in production, savings and in the capital position of farmers. The prices of both products and factors were inflated somewhat. Incomes jumped markedly in money terms and also a little in real terms despite the heavy drain placed on our economy for materials and services for war. But these rises in prices and incomes do not necessarily mean that our post-war economy will differ radically in structure from pre-war. The economic and political framework in which agriculture functions undoubtedly changed somewhat, but these changes are not new ones. Instead they are extensions of much older patterns, old in the sense that these changes in structure had been underway long before the war. I can, however, do no more than suggest some of the main elements of the problem associated with structural changes in our economy affecting agriculture. I shall make this limited survey in terms of political economy—that is, within the political framework of our society with its distribution, organization, and use of political power.

Unfortunately most of the data, and for that matter most of the concepts which are available and which we use in farm management, marketing, and land use, are not very helpful or illuminating in analyzing the role of agriculture in our political economy. They were obtained and formulated for other purposes, certainly not for the most part to analyze the primary relationships that exist between agriculture and the rest of the economy.

Obviously it is necessary to select from among the many variables in structure those that are important and have changed. The growth of population, shifts in taste of consumers associated with urbanization, advances made in the conservation of natural resources, intensification of controls over farm prices inherent in support price commitments, improvements in the skills of the labor force, attainment of sufficient demand to keep resources fully employed—these and other developments must each be deemed significant. I propose, however, to cut across this classification of the components of structure by probing two general questions related to our agriculture:

1. Is American agriculture a declining industry?

2. Does the administration of our agricultural economy require more government participation?

I have purposefully put these questions in a very broad context, for I do not want to rule out political considerations. They do, I believe, focus upon economic structure as an integral part of the political process. What can we learn from our wartime and pre-war experiences that throw some light on these issues?

1. The decline of agriculture

Is agriculture a declining industry? The answer is *yes* in one significant sense: It takes, in absolute terms, less and less human effort to produce all the farm products demanded by the economy served by American agriculture. The crucial fact is that fewer people are needed in farming, even with full employment, high incomes and large exports, notwithstanding the large natural increase of the farm population. This decline in the labor force in farming does not mean that agricultural production is decreasing or is likely to do so. Nor does it mean that the demand for farm products is falling; the contrary is true when income and population increase.

During the four decades preceding World War II the following structural developments were occurring:

1. The expansion in agricultural output occurred at a much slower rate than that in other major industries, namely: [1]

		Increase in output
Agriculture	(1900 to 1939)	60 per cent
Mining	(1900 to 1939)	240 per cent
Manufacturing	(1900 to 1939)	267 per cent
Public utilities	(1899 to 1939)	310 per cent

2. The increase in production per worker was quite similar in agriculture and in other major industries, namely: [2]

		Decrease in employment per unit of product
Agriculture	(1900 to 1939)	48 per cent
Mining	(1902 to 1939)	61 per cent
Manufacturing	(1899 to 1939)	50 per cent
Public utilities	(1899 to 1939)	50 per cent

3. These increases in output and the increases in labor efficiency resulted in a decline in employment in agriculture and in an expansion in other major industries, namely: [3]

		Decreases and increases in labor force
Agriculture	(1900 to 1940)	— 18 per cent
Mining	(1900 to 1940)	+ 37 per cent
Manufacturing	(1900 to 1940)	+ 92 per cent
Public utilities	(1900 to 1940)	+105 per cent
Other industries	(1900 to 1940)	+209 per cent

These facts are, I believe, generally acknowledged and accepted, not only by economists, but also by citizens, farm leaders, and public officials. Agriculture, however, has been declining much more rapidly in its economic than in its political potential. This latter fact has not been made sufficiently explicit, nor are its consequences fully understood. This growing disparity between the economic and the political position of agriculture is causing more and more tensions and stresses within our government, expressing itself primarily in conflict with regard to policy objectives between the legislative and the executive branches of government.

[1] From Solomon Fabricant, *Labor Savings in American Industry 1899–1939*, Occasional paper 23. National Bureau of Economic Research. Appendix tables. Figure for public utilities is estimated from data on pp. 21 and 30.

[2] Solomon Fabricant, already cited, p. 21.

[3] Solomon Fabricant, already cited. Based on Table 9, p. 30.

The war quite obviously did not put agriculture into its state of decline, although the proportion of the nation's labor force engaged in farming dropped from about 20 to 15 per cent, as the farm population fell from around 30 to 25 millions during the war years. Agricultural production per worker in 1944 was 35 per cent above 1939 as compared with an increase of 33 per cent for industrial production.[4] The redistribution of the nation's labor force occasioned by the mobilization for war simply put one of the major structural changes in process in our economy into much sharper relief.

The causes for the decline of agriculture are also quite evident. They may be stated thus: The demand for farm products rides on a low tide—the result of the slowing down of the growth of population and the low income elasticity of farm products. The supply of farm products, however, rides on a high tide, swollen by technological advances. Out of the interaction has come the significant fact that a *declining amount of human effort is required to produce all the farm products demanded by those who depend on American agriculture for food, feed, and fiber.*

How long may this decline proceed? Although the end is not in sight, the following conditions will determine how long it will continue, that is, determine the number of persons who will have to leave farming if our economy is to approach an equilibrium in the distribution of the nation's labor force:

1. The rate at which labor-saving practices and techniques are introduced and capital is substituted for labor in farming—the lower this rate, the fewer the people that will find it necessary to leave farming;

2. The rate of growth of the demand for farm products (fuller employments, larger exports, more industrial uses of farm products, better diets, larger population)—the higher this rate, the smaller the necessary movement of people out of farming;

3. The rate at which farm people reduce the number of hours they work per year (modal group for March 24–30, 1940, was 60–69 hours in agriculture)—the greater the rate at which free time and leisure are introduced, the fewer the persons migrating from farms; and

4. The rate of the natural increase of farm people—the lower this rate of increase the less the necessary movement off farms.

No one, I am sure, is prepared to contend that we will have no more technological advances in the efficiency of human effort in farming. On the contrary, much is being done to help farmers to become more

[4] USDA, *1946 Agricultural Outlook Charts*, p. 15.

efficient. Surely, our government will spend even more millions of dollars in researches and in the dissemination of the results to increase the output per head of farm people as producers. But there are those among us, who although mindful of the advances that are being made on the supply side, believe that the decline of agriculture would not occur if we achieved full employment and a vigorous foreign trade. No one would deny that the loss in opportunities to trade and the depressed conditions of American consumers during most of the thirties reduced the demand for farm products very considerably. But the experiences of the last few years indicate that full employment and larger exports tend to accelerate more efficient practices and techniques in farming. In 1910 nearly a fifth of the national income was contributed by agriculture and the farm population constituted more than a third of the total. Is there any one so brash as to contend that full employment and trade all the years since 1910 would have prevented or even have tempered the decline that has occurred in agriculture? All the evidence points in the opposite direction. The labor force in agriculture today would be substantially smaller had we not experienced the Great Depression.

Without any intention of making a forecast let me ask: What would happen to agriculture if this country were to achieve essentially full employment and freer trade for the next two decades? Would not the number of farms, especially in the overpopulated rural areas of the South, declined very considerably? Under a more perfect combination and organization of resources, four million family farms might well be more than enough to satisfy the demand for farm products. The farm population and the labor force in farming would drop substantially, the latter perhaps to as little as one-tenth of the country's labor force. In general, for the United States, the following generalization appears valid: *Fuller employment and freer trade hasten the decline of the labor force in farming, the size of the farm population, the relative portion that agricultural production and income from farming is of the total.*

What matters, however, are the rates of return which land, labor, and capital employed in farming earn relative to the earnings in other fields of economic endeavor. How does the fact that agriculture is declining affect these rates of return? It depresses them. It holds down the rates of return primarily of labor resources in farming. Both hired and self-employed farm people earn, as a consequence of the state of decline which characterizes agriculture, relatively low income per person.

An expanding industry pays enough to attract additional resources, and when the entry of more capital and labor is checked by manage-

ment and unions, rates are forced all the higher and thus out of line. Meanwhile, a contracting industry like agriculture, burdened with an excess supply of resources consisting mostly of labor, earns very little, so little that people are induced to leave farming, and when the exodus of capital and labor in agriculture is checked by state laws, traditions and the failure to prepare the farm youth for other occupations, the rates in farming are forced down all the more, thus widening the disparity. Despite the overall adverse pressure on agriculture, new technology, however, has made much new capital highly productive. Thus we actually get a two-way movement—(1) people leaving agriculture and (2) capital still moving into agriculture. The burden of structural contraction is thus borne primarily by labor resources in widespread underemployment and very low earnings per person. Most of agriculture is accordingly chronically depressed in terms of income earned. Here is one of the basic consequences of a declining industry whether it be coal mining, fishing, lumbering, or farming—namely, low earnings per person.

Despite the current optimism, this decline of American agriculture has not run its course. Many millions of farm people are still at a great disadvantage, especially in our overcrowded South, although many parts of the Corn Belt, the milk sheds, and fruit-growing areas, are in much better adjustment as a result of the heavy movement of people from farms in recent years. A further redistribution of the nation's labor force, therefore, will be needed, with enough people leaving agriculture to bring the rates of return for human effort in farming more nearly on a par with returns for comparable work in other fields.

Let us not overlook another major consequence that flows from this change in economic structure. Not only is agriculture generally depressed as a result, but the prices of farm products are also depressed. This should be self-evident. Let us suppose that agriculture were confronted with a deficit instead of an excess supply of labor resources and that the earnings of persons in agriculture rose enough to induce people to leave other occupations in order to work on farms. Some notion of the increase in farm prices that would be required becomes apparent.

The decline of agriculture in terms of population, labor force, relative income and other economic characteristics has occurred at a much more rapid pace than it has in the political sphere. The lag on the political side arises primarily from the delays and failure to reapportion political representation to match the redistribution of the population. The results are most clearly expressed in Congress when contrasted with the Presi-

dency. Accordingly, quite regardless of party, Congress is heavily weighted in favor of agriculture; this political disparity is becoming greater, and it does affect adversely the performance of our government.

2. Administered agriculture

Does agriculture require more administration by governmental authorities? Since this issue touches deeply held values, few choose to look at it dispassionately. Yet hard as it is to do so, try we must. It is better to start with descriptive data than with pure models. Our general working knowledge tells us that agriculture is essentially a *mixed economy*. It certainly is not of a pure type, but a combination of three types. Some of the economic operations in agriculture are strictly domestic in nature, namely, the productive efforts that serve the farm household. But it is a fact that the domestic economy within agriculture is contracting as farmers become more dependent upon sales and purchases. The market economy bulks large, especially for that half of American farmers who produce most of the products entering commercial channels. Meanwhile, notably during the inter-war period, the role of the state has expanded markedly. What we have accordingly in agriculture is truly a mixed economy, consisting of *a combination of domestic, market, and state institutions* to administer the allocation of resources.

Who among us would contend that we have not been undergoing a profound change in the organizational structure for coordinating the decisions of economic units? This change was underway long before the war started. In fact, its tempo, if anything, appears to have slackened somewhat during the war years. Judging, however, from the cursory and superficial attention this development has received in our researches, one might infer that this change in structure is of minor importance.

Leaving aside the contraction of the domestic economy, the coordination of the decisions of our farms into some consistent whole has been transferred increasingly from the market to federal agencies. Surely it is not necessary that I list the long array of such agencies and the numerous economic functions they perform. The costs of their activities has risen from about $120 millions in 1930 to around $1,200 millions annually. To guide, coordinate, and direct the uses to which resources are put in agriculture, our governmental agencies employ cash payments and penalties, render services and supply materials for production, fix quotas, and assume some of the risk and benefits associated with yields and

prices. The list of techniques used by them is long, including acreage allotments, commodity loans, price supports of various kinds, payments for soil building and conserving practices, grants and aids for technical assistance in production, provision of materials to destroy weeds, insects, pests, and payments to lessen erosion, soil depletion, and to alter other phases of production operations. Negative rewards are also used as is the case when penalties are assessed for the sale of products in excess of an established quota. Then, too, there are payments by the state which are added to the market price of the product for the purpose of aiding farmers in making a difficult transition in production, to adjust production to pre-established goals, or to counteract the adverse effects of business fluctuations upon the income from farming. Payments have also been made to lower the interest rates on funds employed by farmers. This list does not, however, exhaust the measures that the state employs in administering aspects of the agricultural economy.

The inference to be drawn from this growth in state activities which we have experienced is simply that the conditions of agriculture during the inter-war years required much additional state action. To put it another way, these federal administrative agencies were born out of a necessity as critical problems arose requiring a type of economic management which the market and the domestic economy could not provide. It presumably was an emergency period. And the same can be said for the measures that were taken to manage food and agriculture during the war.

We now have all of this administrative machinery, both that which was established during the war and that developed before the war. With no war and with no pre-war emergency, does agriculture require more than a minimum of administration in the economic sphere on the part of government? Isn't the stage set for a quick return to an essentially pure market economy in agriculture?

I wish it were possible to discern the answer clearly and with certainty. If this were possible we could make firm one of the most important factors in our economic structure. But no ready answer is at hand.

It is, of course, not difficult to show that the Department of Agriculture by virtue of its legislative mandates and machinery is now primarily backward-looking. It is tied to an obsolete set of price relationships and hamstrung by support price commitment in its market operations and by the Tarver amendment in its farm ownership program. The USDA is obviously in a kind of straitjacket, the result of policies

and programs designed for the thirties and the war years. This inflexibility on the part of the USDA will create a series of farm problems, for it will bring about surpluses instead of equating supply and demand, and it may worsen appreciably the income of agriculture. But to show, no matter how effectively, that the existing legislation, policies, and programs and the agencies established to administer them are largely out of date, because of their emergency and wartime setting, does not tell us whether or not agriculture will require little or much administration by government agencies from now on out.

The only way I know of getting at the parameter of this issue is to speculate with regard to the types of major problems affecting agriculture that are likely to arise, and then try to ascertain to what extent these problems are manageable under a pure market economy. First, let us survey briefly developments outside of agriculture which affect the economic well-being of farm people. Undoubtedly many farm people are asking themselves the following question: Dare agriculture produce abundantly? The stock answer currently would appear to be: With full employment and high national income, American agriculture would do well to produce all that it can, in fact more than it did during World War II. To which a government publication added this soothing touch—farm prices will equal exactly 100.0 in terms of parity!

To achieve full employment most economists have in recent years put all of their reliance on the efficacy of income, that is, on the income effects to be had from an avoidance of any overall deficiency in demand. The objective then becomes one of keeping the demand in the economy as a whole large enough to employ all resources and absorb all advances in technology. To attain this goal primary emphasis has fallen upon fiscal-monetary policies. With the government in firm control of the fiscal-monetary machinery, it is felt that the rest of the economic decisions can (presumably) be left to private businesses and household units.

But can a fiscal-monetary authority (which, of course, we do not have as yet) carry the entire load of achieving and maintaining high production? More specifically, is it prudent to expect modern big business establishments, organized labor, and agriculture to adjust relative prices so that all resources can be fully employed, given a favorable overall demand structure? The answer is clearly in the negative. It is not sufficient to use only income measures in laying out high strategy for the mobilization of our economy for full employment. Price measures must also be made a part of overall policy, in my judgment, if we are

to achieve this goal. Economists would do well to pause and ask themselves why it is that relative prices have been so completely neglected in the formulation of economic policies. Might it not be that the present overemphasis on income has arisen from the fact that economists have not as yet succeeded in integrating their price and income theories?

To the question then, "Dare agriculture produce abundantly?" it may be observed: (1) we do not have a fiscal-monetary authority to keep the aggregate demand from becoming either excessive or deficient, and (2) fiscal-monetary measures, while necessary, will probably not be sufficient to keep the American economy in full production. The implications of these two observations are that income from farming is likely to continue to be unstable as a consequence of fluctuations in business unless measures are taken to safeguard agriculture. To give agriculture this protection I have proposed a system of compensatory payments that are counter-cyclical in their effects.[5] Such payments obviously would have to be administered by the government.

Still another implication grows out of the expected imperfections in relative prices, wages, and profits, because of the economic power of business firms, labor unions, and other non-governmental units. These expected imperfections are likely to check production in some major field and thus force more resources, especially labor resources, to stay at farming than the dictates of a full use of resources in the economy as a whole would require. Under these conditions agriculture would find itself in a two-way squeeze. On the one hand the prices of the products that farm people buy would be higher than is consistent with high production in industry. And on the other hand the earnings of the people engaged in farming would be beaten down by the failure of industry to expand sufficiently to absorb the excess supply of labor in agriculture. It is very doubtful indeed that, given the economic power that is at present vested in private groups, a pure market economy can bring about the necessary movement of resources to equalize more nearly the earnings of people in a region like the South with those obtained in other sections of the country. To solve the problems associated with depressed areas it is not sufficient to rely only upon fiscal-monetary measures and on the structure of relative prices made by the decisions of private firms, unions and others. Much of the task will have to be borne by government.

Nor can a pure market economy handle the many problems confronting world trade, including agricultural imports and exports which con-

[5] See Chap. IX and also Chap. X of *Agriculture in an Unstable Economy* by Theodore W. Schultz.

tinue to be important despite vested interest to the contrary. The advances made in getting public acceptance of trade agreements and the new efforts for multilateral trade by the State Department should not go for naught. Unfortunately, however, agriculture has become wedded to a price policy which could not have been better designed to destroy trade. Already cotton and wheat farmers, once a bulwark against protectionism, have a vested interest in dumping and price discrimination. The reorganized USDA is an open invitation to commodity interests to seek and acquire special advantages. Unilateral actions are one of the very undesirable products of this new commodity focus. Meanwhile, the community of nations has not become settled, so soon after the upheavals caused by World War II. Insecurity in the international field, for many years, will be a major condition adversely affecting trade, especially the reconstruction of liberal trade arrangements among nations. To the extent that political security overshadows considerations of economy, liberal trade practices and techniques suffer, and more of the operations of supplying capital, assuming risk, setting terms of sales and of purchases fall upon government authorities.

It is necessary at least to acknowledge the role of government within agriculture. Can conservation be left solely to market forces? The answer, of course, is no. Will a market economy provide stocks and storages necessary to stabilize our gigantic livestock industries? Again the reply is in the negative. What about credit, housing, farm ownership, medical facilities, education, research and experimental work, old age and retirement opportunities? None of these can be left wholly to the market economy. What about yield and price uncertainties confronting farmers? Crop insurance by government, yes. Forward prices with production goals for at least one production period ahead? On this some are undoubtedly uneasy, yet I expect it will prove to be a function which government will be required to perform. What about increasing the per capita economic productivity and hence the earnings of farm people in our great depressed regions? Here, certainly, government action will be required.

These exploratory remarks suggest these conclusions: At least two primary changes in economic structure affecting agriculture are underway. One of these arises from the fact that agriculture is a declining industry; and the other is, I believe, also a fact that agriculture is requiring more economic administration by government although in general not of the pre-war emergency and wartime forms. Both of these developments—the decline of agriculture and the greater participa-

tion by government—entail very comprehensive and important structural changes, both had their head long before World War II, both are likely to continue to be significant developments in the years ahead, and both imply changes in positions and practices adverse to the hopes, values, and the outlook of most agricultural economists. We must for that very reason be on guard that we are not wearing blinders that keep us from seeing what we prefer not to see happen. Herein lies a grave danger to our intellectual work.

11

Effects of Employment upon Factor Costs in Agriculture

IT MUST SEEM a bit old-fashioned to discuss costs. Perhaps it is a longing for the quaint ideas of the past—a nostalgia for the good old arguments over cost of production, comparative costs, opportunity costs, and all their kith and kin. Or is it to escape the realities of the day? What, after all can cost tell us about maintaining high employment and full production? A discourse on full production is so much more modern than is a discussion about costs. It has become fashionable to deal with aggregates—aggregate income, employment, investment, savings, and the like. Aggregate costs, however, have little or no meaning except when viewed as income. When viewed in relation to competitive prices, they are meaningful but essentially negative in that they indicate certain upper limits to the productive efforts of firms. Full production on the other hand states a desirable goal. It implies a positive objective for policy. It presumably has meaning, and it certainly has wide appeal.

One might ask: Why be concerned about costs if we can achieve full production without doing so? This question can be put more specifically: Does it matter if particular costs are reckoned to be low or high as long as the national economic budget reaches a rate of 225 billion dollars, giving us a national income of 200 billions with 60 million jobs, with corporate profits after taxes at 17 billion dollars, and with cash farm income running at 30 billions? Why then stress cost? After all, one man's cost is another man's income.

The older concern about costs—costs broadly conceived in relation to competitive prices in achieving long-run economic efficiency—gave way during the thirties to concern about income. This change occurred as economic thinking shifted its attention to the causes of mass unemployment. The fuller utilization of resources occasioned by the war and by the pent-up demands since the war appears to have brought us back

to considerations of costs, although not as yet fully appreciated. Fashions do change. But there is a kind of seasonal rhythm in the emphasis that is put upon either costs or income, not unrelated to the changing state of the economy. In any event now the season of cost is upon us.

One observes that the transition from a deficiency in the aggregate demand necessary to support the economy at full production to excesses in that demand, like the North Atlantic in October, is often very rough. American agriculture, however, has had good sailing so far, as it usually does during the early stages of a big bulge in the national income. The income from farming has soared higher and faster than have costs in agriculture. Many consumers, however, have already been squeezed by the high cost of living, especially those whose income has been less elastic than food prices. Nor does anyone believe, so I suspect, that agriculture will be spared for long as costs affecting agricultural production continue to advance. The real rub will come when farm prices fall from the post-OPA pinnacle to a more normal long-run relationship to other product and factor prices in the economy. It is therefore quite fitting and perhaps really not old-fashioned to enter upon a discussion of cost in agriculture.

1. Neglect of costs

It is quite evident from the pages of the *Journal of Farm Economics*, and from studies that have appeared in recent years, including *The Land Grant Policy Report,* that developments affecting the cost side of agriculture have been, except for some work in farm management, grossly neglected; costs have been overshadowed by a rapid growth in demand, by inflation, and by the price leadership of farm products in the upward spiral of prices. Quite understandable, as a reaction to the depressed thirties, the state of employment has been viewed as the king pin, and many have been of the belief that it provided the necessary and sufficient conditions for an efficient, stable, and prosperous agriculture.

We obviously have experienced a remarkable change in economic tempo since 1940: the American economy has shifted from very low to high employment, from about 47.5 to 60 million employed civilians, and a drop in the unemployed from about 15 to 4 per cent of the civilian labor force.[1] It is against this background that I offer a few

[1] From Table VII, p. 67, of the *Midyear Economic Report of the President*, July 21, 1947, Washington, D. C.

tentative reflections on how employment affects factor costs in agriculture. In this chapter I am more interested in a meaningful formulation of this problem than in any specific quantitative results.

The economic effects of changes in employment in the non-agricultural sector of the economy are transmitted into agriculture in three ways. One of these is via income because changes in income affect the demand for farm products. We shall call this the *income effect* of employment upon agriculture. Another occurs as a consequence of changes in the cost (per unit) of the products that are produced by the non-agricultural sector that farm people buy for consumption and for production purposes. We shall refer to this as the non-agricultural *product (and service) price effect* of employment upon agriculture. The third of these arises from the effects of changes in wages in the non-agricultural sector on wages and on other factor costs in farming. We shall view this as the non-agricultural *factor price effect* of employment upon agriculture. Furthermore, there are the interactions of these several effects as the economy adjusts in going from low to high employment, as has occurred since 1940.

Farmers become aware of these effects by stages. As the national income and employment expand, they first feel the bigger demand, stimulating like a warm spring rain. There is a promise of prosperity in the air. Production plans are revised upward. There soon follows, however, out of the non-agricultural sector a rise in costs as the things farmers buy go up, and there is also the bidding away of some of the factors that farmers use. The awareness of agricultural economists of these stages has followed about the same timetable.

How much do we know about the nature of these three types of effects and their interactions? We have for the most part neither the analytical equipment nor the data to come up with conclusive answers at this time. We can, however, indicate in a rough fashion certain conditions that are relevant in formulating this problem and the circumstances that appear to exist.

2. *On income effects*

One of the remarkable changes that occurred in the American economy was the expansion of income. Labor income rose from about 49.5 billions of dollars in 1940 to an annual rate at midyear of 1947 in the neighborhood of 119.5 billions of dollars.[2] Even after allowing for

[2] From the *Midyear Economic Report*, Table III, p. 63.

the marked advance in prices, the real aggregate income has probably risen upwards of 50 per cent. If we leave aside for the moment labor income and take disposable personal income and adjust for the rise in consumer prices, and for the increase in population, the per capita increase in terms of 1944 dollars climbed from 719 to 956 dollars,[3] or about 33 per cent.[4]

Inasmuch as a substantial part of Chapter 3 of my *Agriculture in an Unstable Economy* was devoted to an analysis of the role that income elasticity plays in the growth of demand, I shall restrict these remarks to certain of the cost implications of this growth. To avoid the complications that arise from other developments that occurred, let us simply suppose that the high employment increased the income per head substantially (say, 10 per cent) without changing in first instances the general level and the relative position of product and factor prices. For convenience let us take two classes of farm products, namely, Class A, consisting of products with an income elasticity of 1.0, and B with a negative income elasticity of —1.0. The cost implications are fairly straightforward. Presumably approximately 10 per cent more of product A can now be sold at the former price while about 10 per cent less of product B will move at the old price. If the price elasticities of the two classes of products are low, the transition adjustments in supply will be complicated by a sharp rise in the price of product A along with a similar drop in product B. In general the cost of resources suitable to the production of A will rise and conversely for those used to produce B. The more specific the resources, the greater the change in cost. Under these circumstances, it follows that the key to changes in factor costs, as always, is to be found in the marginal rates of substitution of the resources involved.

To retrace our steps, then, we began with the effects of an increase in income; we transmitted this increase to demand according to the dictates of income elasticity and we noted that the differential effect upon the supply price is determined by the rates at which resources can be substituted at the margin. No one would contend, however, that it has been possible to observe the fine hand of income elasticity at work in

[3] From the *Midyear Economic Report*, Table V, p. 65.

[4] This figure, however, overstates the real rise in income to the extent that some goods and services were still unavailable in terms of earlier specifications, that public price control was operative as in housing, and more important that private rationing, price control, and "gray" markets kept the consumer price index below the level that would otherwise have prevailed.

agriculture as a result of the big bulge in national income. The demand for farm products, as of 1947, appeared to have expanded by leaps and bounds, far more than could be explained by income effects even if one assumed a relatively high income elasticity for farm products. Nor could one observe any appreciable difference between those farm products presumed to have a low and those having a high income elasticity. The reasons for this failure to observe these income effects are, however, fairly obvious. It is the perennial difficulty of identifying and isolating the effect of one force in a situation where other forces are also actively at work.

Two things appear to have occurred: (1) the demand for farm products as a whole apparently expanded far more than was to be expected from the increase in income; and (2) farm products with low income elasticity fared, so it appears, about as well as those with much higher elasticities. In addition to increase in income (always restricted to the United States in this context) the demand for farm products was lifted by (1) the diversion of some buying power to food caused by the continued short supply of a number of important durables, (2) the low reserves of food, and (3) the extraordinary foreign demand. The latter is especially instructive on the following point: there can be little doubt that wide differences do exist among the income elasticities of farm products. Accordingly, although the sharp rise in income did increase the demand for, say, eggs, meats, milk, and fruits, more than that for cereals, for example, the pronounced expansion in the foreign demand for cereals well into 1948 obliterated these differences. Lastly and most important is the fact that the price elasticities of most farm products are on the low side, and in the short run these price elasticities predominated, reflecting both supply and demand conditions in transition.

The income analysis herein outlined applies essentially to long-run adjustments. There are no reasons for believing that, given time for the long-run to manifest itself, the income effects to be expected from general analysis will not occur. As they do, it may be presumed that the cost structure in agriculture will be modified by these income effects along lines indicated earlier in this section.

3. Product price effects

The prices of non-agricultural products that farmers buy are an important highway connecting the two sectors of the economy under discussion. We shall restrict our remarks to items entering into production

in agriculture. Production expenses of farm operators doubled, increasing from 6,280 million dollars in 1940 to 12,500 millions in 1946. Our query at this point is: How much of this increase was caused by the changes that occurred in employment?

It is well known, of course, that by no means all production expenses of farm operators consist of non-agricultural products. The item for feed purchased is large and it tripled, jumping from 842 million dollars in 1940 to 2,477 million in 1946. Feed, seed, and livestock, all products originating in agriculture, are among the items that rose most in price. Nor does the bill for taxes, hired labor, mortgage interest, and rent belong in the classification of products with which we are concerned here. Among the products coming from the hands of the non-agricultural labor force are such items as farm machinery, building materials, motor and other equipment, insecticide, twine, electricity, fuel, dairy and hardware supplies, and the like. This category of items made up about 45 per cent of all production expenses of farm operators in 1940 and about 38 per cent in 1946.

The product price effects resulting from basic changes in national employment, such as occurred since 1940, may be traced in terms of three types of adjustments, namely (1) the level of employment, (2) the level of wages, and (3) the structure of wages and of other rewards to factors. First, then, let us consider briefly an increase in the level of employment under the assumption of a constant level of wages. It is conceivable, albeit very improbable, that the non-agricultural civilian employment could have increased from a little less than 38 millions to virtually 50 millions, as it did in fact from 1940 to midyear of 1947, without any increase in the general level of wages. It is, nevertheless, instructive to speculate on what might happen to costs under such circumstances. Let us suppose for a moment that all non-labor resources in the American economy had been fully employed as of 1940 with diminishing returns to human effort generally, at the margin. The consequences of adding a mass of workers, totalling 12 millions would certainly have lowered the value productivity per worker. With the level of wages constant, and with the cost of production increasing, it follows that the prices of products would have to rise.

Obviously all this is a far cry from the circumstances that have in fact prevailed. Despite an increase of about 30 per cent in non-agricultural civilian employment, the real output per worker presumably has increased substantially. To illustrate, if we return to the figures for labor income given earlier, namely about 49 billions in 1940 and 110 billion

dollars for 1946, and adjust for changes in prices,[5] the aggregate increase amounts to nearly 50 per cent and, on a per worker basis, to almost 15 per cent. The inference is that there existed much excess capacity in terms of resources complementary to labor and accordingly a measure of increasing returns has been realized. We may infer from this, given a constant wage level, that the cost of producing non-agricultural products would have fallen and lower product prices would have been warranted.

The level of wages has been anything but constant. Inflation has been the lubricant, and we have used it freely in mobilizing the economy for war and again in making the transition to peacetime production. We have had enough inflation to overcome a multitude of frictions and also enough to reduce sharply the buying power of all whose money income is inelastic. Although it is difficult to ascertain exactly how much the level of wages has risen, taking all non-agricultural industries together, the increase in average hourly earnings in manufacturing will serve our purpose. The 1940 monthly average was $.66 per hour and at midyear, 1947, it had reached $1.22 per hour, a rise of nearly 85 per cent.

If we assume that the value productivity per worker increased about 15 per cent, and if we adjust for the increase in wage rates, the indication is that we have had a wage inflation in the neighborhood of 70 per cent, and this increase, and in many cases more than this, is reflected in product prices.

At this point it may be instructive to take a look at the changes in prices paid by farmers. Building materials have doubled since 1940 while at the other extreme, the prices paid for farm machinery (other than motor vehicles) have risen less than 40 per cent. This difference in price behavior is not wholly a matter of degrees in administered prices. Take the case of farm machinery: the major firms in that industry have been in a favorable cost position, such as to warrant relatively low selling prices (even though such prices have not equated supply and demand without industry-wide rationing and a respectable dark-gray market). For the most part the efficiency of labor has not been impaired during the transition to peacetime conditions, excess plant capacity has been utilized more fully, lowering overhead cost per unit, and selling cost has undoubtedly fallen; and as a result, although wages have followed the general upward spiral, selling prices have risen substantially less than

[5] The consumer's price index for 1946 averaged 139.3, but this plainly understates the price situation. In December of 1946 this index stood at 153.3. In the above calculations we have, essentially for convenience, adjusted by 150.

in most fields. One leading firm, the International Harvester Company, it is of interest to note in passing, was moved to announce a small reduction in its price during 1947.

There is little on which to remark in the case of changes in the structure of wages and of other regards. Looking at rewards generally, it appears that returns to proprietor interests, with agriculture in the forefront, rose relatively more than wages and salaries, that wages exceeded salaries, and that interest and net rent rose the least.[6]

TABLE I

	1939		*1946*	
	In billions of dollars	*Share of total in per cent*	*In billions of dollars*	*Share of total in per cent*
Total	70.8	100.0	165.0	100.0
Employees (wages and salaries)	48.0	67.8	109.8	66.5
Net income of agricultural proprietors	4.3	6.1	14.9	9.0
Net income of other proprietors, including net corporate profits	11.1	15.7	27.3	16.6
Interest and net rent	7.4	10.4	13.0	7.9

What, then, are the price effects of fundamental changes in employment, such as occurred in the United States since 1940, upon non-agricultural products that farmers buy? The adding of 12 million workers to civilian employment in non-agricultural jobs probably did not lower the value productivity per worker. Instead, there are many diverse indications that output per head employed increased somewhat, perhaps as much as 15 per cent but very likely not as much as 25 per cent or more as some have been prone to argue, and surely not as much as wages increased. Consequently, higher product prices were in order to reflect a marked wage inflation, but not necessarily as high as many product prices soared—in view of the fact that rewards to proprietors now claim a larger share of the national income than formerly. (See data in Table I.) In the main, the non-agricultural products that farmers buy for production did not rise disproportionately.

4. Factor price effects

We noted, first, the gentle rain that comes from an expansion of income and how this nurtures factor costs in agriculture. The demands for farm products grow but at an uneven rate and herein lies the clue to

[6] Based on *Survey of Current Business*, U. S. Department of Commerce.

their effects on costs. We then observed the stormy path of non-agricultural product prices feeding higher costs into agriculture. This storm consists of two conflicting currents; namely, higher productivity making for lower cost and a gusty spiral of wage and price inflation, much the stronger of the two as it sweeps the countryside. There is still a third force at work, probably much the strongest of them all over the years in reshaping the basic cost structure within agriculture, and that is the effects of employment on the relative cost of human effort in agriculture.

The channels and the nature of the causes at work are, I believe, fairly clear. The development of the American economy has made it necessary to transfer, on the one hand, many labor resources out of agriculture, and on the other much capital into farming. To the extent that these transfers have been insufficient, a factor disequilibrium has arisen. This imbalance between agriculture and the rest of the economy was worsened very appreciably during the Great Depression. There was the failure of job opportunities to materialize in industry sufficient to absorb the excess supply of labor in agriculture, and there was the extreme instability of prices and income adding to the economic uncertainty of farming and thus tightening the adverse effects of capital rationing upon farming.

Obviously, the financial position of farmers has improved by Bunyan-like strides. Never before were they better situated in terms of assets owned to total assets and in terms of liquidity. Accordingly, we may expect farmers to close a substantial part of the gap that has heretofore existed between the prevailing cost of additional capital and the marginal efficiency of capital used in farming. Yet this gain, important as it is, would be largely blocked unless labor resources in excess of supply in agriculture have an opportunity to transfer into nonagricultural employment.

The expansion in employment has, of course, provided precisely this type of opportunity. The industrial-urban labor market has been absorbing many farm people. But this labor market, even at best, always has many imperfections. There are an endless variety of barriers to migration. More recently the shortage of housing has loomed very large. Yet despite the barriers—physical, economic, and social—the improvement in the factor market for labor in the non-agricultural sphere has affected agriculture. The evidence on this point is not controvertible. In January, 1947, the farm population was 3 million less, or about 10 per cent below that in April, 1940. The careful, detailed studies of the characteristics of the labor force in agriculture by Hagood and Ducoff throw much needed light on how this factor market operates.

Our concern here, however, is with factor costs in agriculture. On theoretical grounds as well as statistical, our conclusion is as follows: (1) In going from low to high employment, the wages for human effort increase relatively more in agriculture than they do in the non-agricultural sector; and (2) the cost of human effort in farming rises relatively to the cost of capital including the cost of land.

Given a change in national employment of the magnitude that has occurred since 1940, we may expect these two types of adjustments in costs to bring about a major transfer of labor resources, out of agriculture, as it has, and to induce a far-reaching recombination of resources in farming consisting of a substitution of capital for human effort and, on many farms, an increase in the scale of the farm. Two sets of figures will aid us in illustrating these developments. First let us take the change from 1940 to 1946 in average annual earnings per full time employee as shown in Table II.[7]

TABLE II

Earnings of Full-Time Employees of 1940 and 1946 Compared

	All industries (in dollars)	*Mining (in dollars)*	*Federal general government (dollars)*	*Transportation (in dollars)*	*Manufacturing (in dollars)*	*Wholesale & retail trade (in dollars)*	*Services (in dollars)*	*Farms (in dollars)*
1940	1306	1388	1139	1754	1432	1391	949	390
1946	2357	2677	2424	2937	2512	2392	1842	1181
Increase in dollars	1051	1289	1285	1183	1080	1001	893	791
Increase in per cent (1946 over 1940)	80	93	113	67	75	72	94	203

Note first that in this context wages on farms have increased much more relatively than in other major industries. The increase in non-agricultural wages listed range from 67 to 113 per cent while those on farms tripled. In absolute terms, however, the increase on farms was the smallest, namely, 791 dollars compared to a range from 893 to 1289 dollars in other fields.

[7] Based on Table 26 of the July, 1947, Supplement to *Survey of Current Business on National Income*, U. S. Department of Commerce.

The second set of figures pertain to the changes in relative costs of factors within agriculture:

Type of factor	*Increase from 1940 to midyear, 1947 1940 = 100*
1. Capital (cost of long and short term funds)	100
2. Farm machinery	140
3. Equipment and supplies	150
4. Farm real estate	190
5. Building materials	200
6. Farm labor	320

It may be of interest to speculate on what would happen to this pattern of cost if during the next ten years the United States were able to maintain full employment, and if farm product prices were to decline about one-fourth to one-third relative to other product prices during this period from their wartime and early post war level. My anticipation would be in these terms: agriculture would be better supplied with capital than ever before, capital rationing would become a less important factor than before the war, and the effective rate of interest in agriculture would probably not rise. Given the strong financial position of farmers it might even decline some. Prices of farm machinery, equipment and supplies would climb from present levels, and building material, on the other hand, would fall. The strong upward drift in farm real estate prices would be checked; but under the conditions postulated, it would probably not decline substantially. The cost of labor, and of human effort generally in agriculture, would continue to rise, for the disequilibrium in this factor market is still very considerable. If these expectations were in fact realized, the cost structure in agriculture will become significantly different from that of the pre-war period, and this, in turn, will require an important reorganization of resources in farming, substituting capital for labor and enlarging the scale of many American farms.

Costs in economics, like gravity in physics in this atomic age, may be a bit old-fashioned, but basic nevertheless, in analyzing economic efficiency. The income and price effects of high employment clearly point to changes in the cost structure in agriculture that are exceedingly far-reaching in their economic, social, and political implications.

12

Capital Rationing, Uncertainty, and Farm-Tenancy Reform

FARM TENANCY REFORM, like most reform movements, is motivated by ends which are more ultimate in nature than the attainment of the optimum rewards of economy. All too often farm tenancy is looked upon as being primarily a problem in economics. It is not such. To view it so is to miss most of its basic features. In order to get at that part of the tenancy problem which falls within the scope of economic analysis, it is necessary to separate the goals which lie back of the movement to bring about less farm tenancy from the probable economic effects of public action designed to attain such goals. It should be plain that it does not fall within the province of the economist to determine the appropriate goals.[1] The family farm is such a goal. In this country, except for the South and parts of the Far West, the family farm is looked upon as an ideal. It represents a farm which is owned by the farmer and operated chiefly by the labor of the farmer and his family. The goal as it is generally conceived does not explicitly demand that all the equity necessarily belongs to the farmer. Although it is clear that the family farm thus formulated involves economic elements, it does go far beyond economic considerations. Like any other primary aim of people, it is the product of a complex set of values not easy to unravel and assess.

My purpose here is to formulate certain basic features inherent in tenancy reform which have a direct bearing upon the way in which resources are combined within the farm, and hence upon the cost structure, in order to point out some of the fundamental economic effects which follow when the system of farm tenure is changed from one in which farm operators rent the resources they use, to a system in

[1] See especially G. Haberler, *The Theory of International Trade* (New York, 1936), Chap. xiii; Talcott Parsons, "Some Reflections on the Nature and Significance of Economics," *Quarterly Journal of Economics,* Vol. XLVIII, 1934, pp. 511–545; and Knut Wicksell, *Lectures on Political Economy,* Vol. I: *General Theory* (New York, 1934), Introd., pp. 1–12.

which they come to own such resources. Framing the problem in this way does two things. In the first place, it points the way for measuring the probable income and price effects of alternative tenure systems and, in the second place, it provides a basis for ascertaining the essential inconsistency among the various aims which society is trying to attain. Both of these contributions are well within the limits of economics.[2]

It is well to start with one of the less complex tenure situations in agriculture such as that found in the Corn Belt, where the typical farm is a family-size firm. Most of the labor employed to operate the farm in this region is provided by the farmer and his family.[3] With regard to labor, therefore, it meets one of the criteria of the ideal family farm. However, the fact that in the Corn Belt the farmer and his family both do the work and manage the farm does not demonstrate that this form of organization of labor and management is necessarily the most effective. The existing institutions in the Corn Belt, however, do not favor the separation of farm labor from its management. This digression should make plain that what society wants and gets as it evolves its basic institutions is not necessarily the most efficient combination of resources in terms of costs.

Most of the farms in the Corn Belt are operated either by tenants or by owners who are not free from debt. This leaves out two groups. There is the part owner, a farmer who has title to part of the land which he operates and who leases additional land to complete his farm. Numerically this group is small relative to the other two, and, since it combines the characteristics of both ownership and tenancy, a treatment of the other two will necessarily cover by inference the part-owner group. There is, in addition, a group of farmers who own the farms they operate and are free from debt. This group varies in its relative importance from state to state and from time to time[4] but is dropped from further consideration in this chapter inasmuch as farm

[2] F. H. Knight, "The Nature of Economic Science in Some Recent Discussions," *American Economic Review,* Vol. XXIV, 1934, pp. 225–238; also Oskar Morgenstern, *Limits of Economics* (London, 1937).

[3] See L. C. Gray and Mark Regan, "Needed Points of Development and Reorientation of Land Economics Theory," *Journal of Farm Economics*, Vol. XXII, 1940, pp. 34–51, the second section.

[4] In 1930 a considerable proportion of the farm in the Corn Belt owned by their operators were free of mortgage, though not necessarily free of debt. The census of that year reported, for example, at the eastern end of the Corn Belt, Ohio with 43 per cent of all farms owned by the operating family and free of mortgages. For Iowa, however, the figure stood at 19 per cent. A further consideration here is the fact that a farm family with sufficient assets to pay for a farm does not have to rent. There are farms for sale at prices which are fair capitalizations of their produc-

operators in this category are of no concern in whatever steps society may take to facilitate tenure reforms. Surely these operators have arrived at the desired goal. It does not follow, of course, that it is necessary that full ownership be the aim, for clearly society in its collective actions may be satisfied in stopping far short of this point. Accordingly, the point of focus will be farms operated by tenants and farms operated by owners whose resources are encumbered by debt. The distinction is essentially a legal one in that the second group possesses title to the resources whereas the first group does not. The economic importance of this distinction, however, takes on major significance, as will become clear in the analysis which follows.

Our first set of conditions may be stated as follows:

1. Many farm families do not have sufficient assets of their own to operate and to own a farm.[5]

2. Farmers with insufficient assets seek to supplement their own resources by obtaining capital from outside sources either by renting land and instruments of production or by borrowing funds to buy these resources.[6]

3. Both the creditors and the landowners in supplying capital to a farmer exercise varying degrees of capital rationing whose economic effects have a direct bearing upon cost and returns.

The first two of these conditions so clearly have their counterparts in the current situation of Corn Belt agriculture that there is no point in laboring the evidence. The notion, however, that the capital market rations capital resources which farmers are allowed to use is probably less self-evident. Since capital rationing has far-reaching implications for farm-tenure reform, some elaboration of its nature follows.[7]

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tivity value. It therefore follows that the decision to rent or to buy a farm is no longer affected by those from whom the operator must hire resources.

[5] Census data for 1930 indicated that in Ohio (eastern end of the Corn Belt) 50 per cent of the farm real estate equity belonged to the farm operators, while in Iowa less than 30 per cent was so held. During the thirties there occurred a further substantial shrinkage in the equity of farm operators. The prosperous forties, however, reversed this trend.

[6] Again, to take 1930 census data, in Iowa 57 per cent of the land was rented by the operator; for Ohio the figure stood at 38 per cent. Mortgages reported by 44,000 owners in Ohio amounted to 139 million dollars, and in Iowa 46,000 owners listed 445 millions of mortgages. The mortgage foreclosures following 1932 added further to the acreage rented although it reduced the volume of mortgages outstanding.

[7] The writer has had the privilege of reading the unpublished Doctor's dissertation of Professor A. G. Hart on "Anticipations, Planning, and the Business Cycle," which contains a comprehensive treatment of the economic effects of rationing upon the firm. See also J. R. Hicks, *Value and Capital*, Oxford, 1939, Chap. II.

I Types of Farm Tenure and Capital Rationing

As an analytical model, the firm is one of the better-established concepts in formal economics.[8] On the production side it is the agency which plans production and puts plans into effect. The conventional supposition is that there is available to the firm an unlimited supply of capital resources at going prices [9] and that the entrepreneur therefore adds additional resources until the purchase price of the marginal input equals the sales price of the marginal output. Rationing of capital or of other forms of inputs, however, substantially modifies what happens within the firm. The actual techniques of rationing may take several forms: (1) rationing of the inputs that may be purchased; [10] (2) rationing of the output that may be sold; [11] and (3) rationing of the amount of capital that may be hired.[12] In some respects (1) and (2) overlap. It is convenient, however, to include the hiring of durable resources for productive purposes (farm land) as one of the means of obtaining capital. It is this third form which we shall consider more fully. Two questions arise: (1) "How does the capital-rationing process work in practice?" (2) "How much does it reduce the returns of the farm?" It is presumed in what follows that, if a farmer is not allowed to purchase the use of as much capital as is necessary to permit him to add resources up to the point where marginal cost equals marginal revenue, the average cost per unit of output is necessarily increased; or, to put it otherwise, the farm is kept below its best combination of resources.[13]

Faced with the necessity of supplementing his own limited assets with outside capital, a farmer has two alternatives—he may rent or he may borrow. These two are direct substitutes when the use of farm land and the capital appurtenances fixed to farm land are being purchased, while machinery, livestock, fertilizer, seed, and the services of labor are not as a rule rentable. Under existing institutional facilities a

[8] The literature is abundant. Kaldor, Hicks, and Hart are especially applicable. With reference to agriculture, see Schultz, "Theory of Firm and Farm Management Research," *Journal of Farm Economics,* Vol. XXI, 1939, pp. 570–586.

[9] This does not preclude differential interest rates which, say, are dependent upon the ratio of loans to assets.

[10] In agriculture the restriction of the AAA on the use to which a farmer is allowed to put his land is one form of rationing of this type.

[11] Marketing quotas which the farmer is permitted are a case in point.

[12] For a systematic analysis Hart's dissertation (*op. cit.*) should be consulted.

[13] The formal analysis of these effects may be arrived at by treating the rationed components as limitational factors.

farmer is allowed to rent a larger volume of capital (in the form of farm land and buildings) than he is permitted to borrow. The smaller the total assets the farmer owns, the greater the relative difference between the amount of capital that is rentable and the amount that is borrowable. Table I illustrates the maximum limits of going practices.

TABLE I

MAXIMUM LIMITS OF ASSETS REQUIRED FOR RENTING OR BORROWING CAPITAL

Source and use of capital	*Assets Required of Farmer*	
	Percentage required	*Applied to typical 160-acre farm at $100 per acre and $2,000 of equipment*
I When borrowing capital:		
A. To buy land (total value $16,000)		
1. First mortgage	(50)	($8,000)
2. Second mortgage	25[a]	4,000
B. To buy capital equipment (total value $2,000)		
1. Chattel mortgage	50[b]	$1,000
Total (with both second and chattel mortgage)	—	$5,000
II When renting capital:		
A. To rent land (total value $16,000)	—	—
B. To buy capital equipment (total value $2,000)		
1. Chattel mortgage	50	$1,000
Total (with chattel mortgage)	—	$1,000

[a] In some instances contract sales are being made with as little as 10 per cent down payment. These, however, are rare and must be considered as exceptional, partly the product of pressure upon insurance companies to dispose of their land holdings.

[b] Norton, Ackerman, and Sayre indicate that most of the tenants in their study (1,055 farms) owned at least 75 per cent of their working capital. "Tenants are expected to have a higher percentage of equity than owners because their total capital is so much smaller" (L. J. Norton, Joseph Ackerman, and C. R. Sayre, *Capacity To Pay and Farm Financing* [Illinois Experiment Station Bull. 449 (Urbana, December, 1938)]). The 50 per cent figures used here accordingly must be viewed as an outside figure for tenants and not as common experience.

By borrowing the maximum through a first and second mortgage on the farm real estate and a 50 per cent mortgage on the chattel (leaving

contract sales aside), $5,000 of assets are required against $1,000 [14] of assets to operate a farm when it is being rented. In order to make plain some of the consequences that flow from this, let it be assumed that a 160-acre farm happens to be the optimum size, simply meaning by this that, if more than $16,000 worth of this kind of farm land were taken on, its returns would be less than the extra annual carrying cost of more units of land, and the same for equipment above $2,000 in value.[15] A farmer with total assets less than $5,000 has the choice of buying a smaller farm (or less equipment or both) or renting a farm. To be an owner, therefore, although encumbered with maximum first and second mortgages, would entail for a farmer with total assets less than $5,000 going to a higher cost combination, and presumably the competitive situation would force him to sell his labor and that of his family at less than the going rate. What does he get in return? Essentially two things: (1) the "privilege" of large prospective windfalls and losses and (2) probably more important, that higher social status in the community which ownership bestows.[16]

There is ample evidence that ownership is bought at the expense of the returns to the farmer and his family. When a farmer buys, he is generally forced to take on a farm which is too small to permit as high a rate of output relative to his labor and management inputs as would be the case if he rented. Wilcox and Strand [17] found the average owner and tenant farmers in Iowa to differ in size as shown in Table II.

There is the further fact not only that owners operate smaller farms but that they tend to buy farms on the less productive soils, again, of course, because it takes less capital. Norton, Ackerman, and Sayre report for 1,055 Illinois farms that owners operated farms of 208 acres and tenants of 239 acres.[18] The size of the farm, the quality of the land, the working capital per acre, and the value of productive live-

[14] Or $1,500, if one takes the 75 per cent figures of Norton, Ackerman, and Sayre for outstanding tenant farmers in Illinois (L. J. Norton, Joseph Ackerman, and C. R. Sayre, *Capacity To Pay and Farm Financing,* Illinois Experiment Station Bull. 449, Urbana, December, 1938). The first figures, i.e., to own a farm, would become $5,500 instead of $5,000 if similarly adjusted.

[15] To keep the analysis manageable, the farmers in this group are assumed to be strictly homogeneous.

[16] The farmer buying his farm can presumably make longer and more profitable production plans, provided, of course, he has the necessary capital to carry them through.

[17] W. W. Wilcox and Norman V. Strand, *Differences in Iowa Farms and Their Significance to the Planning of Agricultural Programs* (Iowa Agricultural Experiment Station Bull. 260, Ames, June, 1939, Appendix C).

[18] *Op. cit.*

TABLE II

DIFFERENCES IN AVERAGE NUMBER OF ACRES FOR OWNER AND TENANT FARMERS IN IOWA

Area	*Owner*	*Tenant*	*Difference in size in favor of tenant*
Dairy	137	165	28
Cash grain	152	178	26
Western livestock	156	174	18
Eastern livestock	142	167	25
Pasture	148	163	15

Source: W. W. Wilcox and Norman V. Strand, *Differences in Iowa Farms and Their Significance to the Planning of Agricultural Programs* (Iowa Agricultural Experiment Station Bull. 260, Ames, June, 1939).

stock were all lower on farms with the highest debt-to-property ratios. Labor and management returns averaged $633 on owner farms and $896, or 40 per cent more, on tenant farms.[19] In the Tarkio Creek study, which takes in part of northern Missouri and southern Iowa, Schickele and Himmel found that farms with mortgages up to $20 per acre averaged 229 acres in size.[20] As the mortgage debt per acre increased, the size of the operating unit declined. Farms with over $110 of mortgage debt per acre had a mean size of only 137 acres. There was no significant difference in the productivity of the soil in relation to the size of the mortgage debt.[21]

The evidence just cited plainly points to the fact that the customary practices of credit institutions are such that a farmer in the heart of the

[19] *Ibid.*, pp. 219–20. It was necessary to impute and subtract earnings for the farmer's own capital. In doing this, I used 4 per cent for owner capital and 6 per cent for his tenants' capital. I used these interest rates upon the advice of Professor Norton, senior author of the study.

[20] Rainer Schickele and John P. Himmel, *Socio-economic Phases of Soil Conservation in the Tarkio Creek Area* (Iowa Agricultural Experiment Station Bull. 241, Ames, October, 1938).

[21] Up to a point, one type of resource may be substituted for another type without measurable loss in efficiency. Presumably, other forms of capital might be used in place of land since the amount of land that can be purchased is restricted by capital rationing. In general, however, a farmer with limited assets is in no position to add additional inputs of fertilizer, better drainage of fields, etc., since these inputs also require capital, and rationing appears to come into play about the same as it does when he buys land. Accordingly, it is only in labor, especially that of his family and his own, where he is in a position to substitute. The marginal rate of substitution of land for labor resources is, in general, distinctly smaller in grain farming in central Iowa than in dairy farming in northeast Iowa.

Corn Belt with less than $5,000 of assets is not permitted to establish a firm of optimum size except by renting. By framing the problem in this way, it becomes evident that, with prevailing farm prices, interest rates, and rental rates, when a farmer with restricted assets goes from tenancy to ownership, the economic effects are either (1) lower rewards to the farmer and his family for their labor and management inputs or (2) higher costs reflected in higher prices of farm outputs. At present the competitive forces are such that, when a farmer makes the shift from renting to owning, his income is likely to be lowered. This lowering of returns is one of the effects which society needs to weigh when it takes steps (leaving current lending practices as they are) to lessen the amount of tenancy.

II Types of Farm Tenure and Economic Uncertainty

It is necessary to go a step farther and examine why the practice of capital rationing has become established. Leaving aside such features as legal requirements and customary interest rates, which are probably not economic in their origin, it would seem that the tap root of this practice is grounded chiefly in economic uncertainty.[22] This becomes more apparent if we abstract from uncertainty, for then expectations would always be realized, and, if this were so, there would be no economic reason whatsoever for not extending to farmers (and other entrepreneurs) all the resources they found it profitable to employ. Or, if it were only risk that was at stake in the gap which separates expectations and realizations, we might presume that creditors and landlords would merely add the necessary risk premium and allow farmers to obtain all the resources which they would care to hire at a price which included a payment for the risk entailed. But clearly this is not what happens.

Of one thing we are sure in this uncertain world—expectations do miss the mark. The best-laid plans of entrepreneurs often go astray, some, it seems, more badly than others. This latter fact probably contains the key to a better understanding of the forces at play and of what might be done to control them. But as yet no wholly satisfactory rationale has been worked out for this problem so as to point the way

[22] I have in mind the concept of uncertainty essentially as developed by F. H. Knight in *Risk, Uncertainty and Profit* (Boston, 1921).

to its solution.[23] Suffice it, however, for the purpose of this chapter to give in skeleton form certain essential overall elements that are involved. All expectations must be rooted somehow or other in past experience. We know, moreover, (1) that past experiences are not a wholly reliable guide to the future and (2) that entrepreneurs, partly because of the limitations of past experience and partly for additional reasons, have imperfect foresight—a lesson which past experience teaches all too well. Why this gap exists between expectations and realizations raises some of the most perplexing issues confronting economic analysis. With change as a part of the order of economic conditions (a postulate that should appear as self-evident as the basic presupposition that people do in fact economize their resources) it follows that, unless both the *direction* and the *rate* of change are known. expected future prices and expected technical rates [24] are subject to errors. When the entrepreneur presumes that he knows how these errors are distributed about the mean value which he expects, the presumed probability of realizing the expected price (or technical rate) may be ascertained. This type of imperfect foresight has become associated with the notion of risk.[25] Accordingly, we may note three stages: (1) when each expected price and expected technical rate is assumed to have a single known dimension, we have perfect expectations;[26] (2) when the dimension of the expected mean value (price or technical rate) is probable and the parameter of the probability known, the expectation is imperfect in the sense that risk is involved; and (3) when the probability distribution of the expected mean value is not known, we step beyond risk into economic uncertainty.

The incidences of uncertainty are distributed quite differently in each type of farm tenure. In order to simplify the discussion, only the two types—when a farmer leases the resources and when he borrows them—

[23] The Hicksian formulation is suggestive (see especially Chap. X of his *Value and Capital*). Cf. also J. Marschak, "Money and the Theory of Assets," *Econometrika*, Vol. VI (1938), pp. 311–25.

[24] By technical rates I have reference to the outputs resulting from given inputs. What outputs will result from an input is seldom known definitely and precisely. Quite the contrary, input-output rates in farming are shrouded in risk and uncertainty to an extent not unlike expected prices (Schultz, *op. cit.*).

[25] When the probability attached to the expected price, etc., represents the views of a particular entrepreneur, it is referred to as *subjective risk*.

[26] It has become traditional to formulate the basic postulates employed in theoretical analysis in such a way as to exclude imperfect foresight and uncertainty (see, e.g., T. W. Hutchison's criticism in *The Significant and Basic Postulates of Economic Theory*, London, 1938, Chap. IV.

will be considered.[27] As was indicated above, these two are the most important types when farm-tenure reform is under consideration.

When the farm is leased, the principal features which determine the share of the uncertainty borne by the farmer and that borne by the landowner are as follows: (1) In the Corn Belt farm leases are typically short-term contracts, most of them running for one year. Consequently, neither the tenant nor the landowner assumes commitments which run ten to forty years into the future, as is the case when a farm is purchased on borrowed funds.[28] If interest rates, technology, or prices change, flexibility is at hand for the next year, since a new lease may be drawn. (2) Another characteristic which is relevant to uncertainty bearing is the fact that the rent payments agreed to are usually not in cash but are stipulated in terms of commodities.[29] Accordingly, in the case of rented farms changes in the price of farm outputs do not substantially alter the division of gross returns between tenant and landowner; both parties thus share the uncertainty inherent in future price fluctuations. (3) The assets of the landowner are of such a nature that the ratio of dissipation per year to rent per year is small even where little or no "supervision" is exercised currently by the landowner.[30]

As farming becomes relatively prosperous and farm incomes for a

[27] In all this discussion I have purposely avoided treating the part owner, who is merely a combination of renter and owner and introduces no new problem from the point of view of this discussion. In practice it is fairly limited because of the difficulty of (1) finding a small tract for sale and (2) having adjacent to it another small tract that may be rented.

[28] On January 1, 1935, over one-third of all Iowa tenants had been on their farms for one year only or less (Rainer Schickele, *Farm Tenure in Iowa*, II: *Facts on the Farm Tenure System*, Iowa Agricultural Experiment Station Bull. 356, Ames, February, 1937, p. 260). For the east and west North Central states, roughly the Corn Belt, the proportion of tenure operators indicating occupancy of less than two years at the time the 1930 census was taken was approximately 35 per cent (H. A. Turner, *A Graphic Summary of Farm Tenure*, U.S. Department of Agriculture, Miscellaneous Pub. 261, Washington, December, 1936, p. 49). A. J. Englehorn (*Farm Tenure in Iowa*, VI: *Landlord-Tenant Relationships in Southern Iowa*, Iowa Agricultural Experiment Station Bull. 372, Ames, August, 1938) reported that, out of a sample of 233 farms in southern Iowa, 77 per cent of the leases were one year in length.

[29] In 1930, when farms rented for cash were at a peak figure, the Corn Belt states reported from east to west: Ohio, 25 per cent; Indiana, 14 per cent; Illinois, 21 per cent; Iowa, 45 per cent; and Nebraska, 21 per cent. Centering in Iowa is a section where many highly desirable farms are rented for cash to highly responsible tenants; even so, for the most of the tenant-operated farms leases run on a share basis.

[30] An examination of the conservation problems gives evidence that many landowners are having their assets depleted slowly, to be true, but apparently without being aware that it is going on (see Rainer Schickele and C. A. Norman, *Farm Tenure in Iowa*, Iowa Agricultural Experiment Station Bull. 354, Ames, January, 1937).

period of years fairly stable, tenants prefer to assume leases carrying cash rather than the crop-share terms. By 1930 the cash leases in Iowa had become as numerous as crop-share leases, the ratio being crop share, 45 per cent; cash, 45 per cent; and stock share,[31] 10 per cent. With the adverse economic conditions which set in following 1930 the number of crop-share leases increased rapidly at the expense of the cash lease. By 1934, 72 per cent of all leases in Iowa were crop share and only 18 per cent cash. This marked the low point. Since then the proportions have been changing again, in favor of the cash lease.[32] The reasons for this propensity to shift to cash leases during periods such as prevailed from 1927 to 1930 or from 1935 to 1939 are: (1) the recent past incomes were sufficiently high to permit some accumulation of capital reserves by the tenant; hence, he was in a position to "guarantee" the rent, making the first payment before the crop had been harvested and marketed; (2) the cash lease is preferred by the farmer because it gives him more entrepreneurial freedom; the landlord is less concerned about the details of management and leaves the making and execution of the production plans more fully to the farmer; and (3) the prevailing expectations having become optimistic, wide fluctuations in prices in the future are discounted; hence the belief that there was ahead less uncertainty from this source, coupled with the willingness to pay a larger share of the going returns of the farm as rent (a characteristic of the cash contract) for the privilege of having greater managerial freedom.

When a farmer assumes ownership, the assets which he invests in the farm real estate are peculiarly vulnerable to changes in expected prices, interest rates, and technology. When these take a favorable turn, he becomes the recipient of a mighty windfall; when they turn against him, his capital losses may become staggering. The effects of such changes are greater the lower the equity of the farmer. The equity is commonly lowest in areas where the productivity of the soil or, in economic terms, where the value of the land is the highest. Moreover, the fluctuations in farm land values has in the past also been greater in the more productive areas. As a result, the likelihood of potential gains or losses is greater for owners in north-central Illinois than for owners in middle to southern Illinois, for Iowa farmers than for those of Ohio.

[31] "Stock share" is a special form calling for much closer integration of management of the two parties.

[32] Lawrence W. Witt, "Incoming and Outgoing Payments of Iowa Farm Families" (Iowa State College Master's thesis, 1938), section on "Rent Paid by Iowa Farm Operators."

Farm-tenure reforms have not recognized the fundamental implications of uncertainty bearing which are inherent in the ownership of farm land and especially the magnitude of the gain or loss that may result when highly productive land like that in the heart of the Corn Belt is involved. Let us observe, first, how the substantially free-enterprise economy which agriculture represents has by a more or less trial-and-error procedure dealt with this aspect. The following major features may be observed: (1) Farmers with limited assets desiring to become owners select small farms, both in size (acres) and in productivity. The pressure to buy a small farm varies directly with the ebb and flow of the general outlook; when the economic horizon appears placid, the tendency is more nearly to approach the size assuring the lowest average cost. Conversely, with the expectancy that more trouble may be ahead in terms of lower prices, etc., the forces making for proportionately smaller farms being purchased go into effect. (2) Creditors have developed a set of rules to safeguard their interests from unexpected changes, the most important one of which is that funds are not to be extended beyond a fixed ratio of credit to property values. These ratios appear to be quite arbitrary, but, when applied, they become fairly flexible as between individual borrowers. Even more important to the analysis at hand is the elasticity that is shown in the treatment of borrowers during periods when expectations are clouded with uncertainty compared to periods when the outlook is more assuring. This latter form of elasticity stems directly out of the general state of confidence. For example, after a run of years when returns to agriculture were distinctly favorable, such as prevailed from 1900 to 1910, the effective margins required by creditors were lowered. Hence, also, the effects of capital rationing were less pronounced. In contrast, after the decade of more or less chronic depression experienced by much of the Corn Belt agriculture following 1920, creditors in a number of ways increased the effective margin even though the traditional ratios of debt to property values were not altered. To list but a few of the devices employed: the appraisals that were made of the property on which the mortgage was placed were stiffened; the amount of capital which the farmer had available for operating the farm was more carefully scrutinized and a larger amount insisted upon; and provisions for shorter term contracts were introduced. It should be noted that the changing of the interest rate is not necessarily one of the ways by which creditors discourage or encourage borrowing. As a matter of fact, interest rates charged farmers declined absolutely during the period since 1920, a stretch during which the general outlook has

been less certain that theretofore.[33] This further focuses attention upon the overall fact that the supply of resources which the farmer is permitted to hire in the capital market is rationed by factors other than price.

III Conclusions

We shall now bring together the several issues dealt with in this analysis. Taking the family farm as an ideal, an end which society desires, we have sketched the economic effects of capital rationing and uncertainty upon two classes of farmers: (1) those who supplement their limited assets by borrowing funds and (2) those who do so by renting the resources. Within the framework of present institutions and practices, farmers who hire funds from outside sources in order to establish a firm are more likely to obtain sufficient capital to do this by renting rather than by borrowing. Furthermore, ownership of a farm results in the farm family bearing a much larger share of the economic uncertainty that lies ahead than it does when the farm real estate is being rented.

Two conclusions with reference to farm-tenure reform follow. In the first place, changing tenant farmers over to encumbered owners reduces measurably the returns of farmers who have limited assets. Higher costs of production are entailed, and this results in lower labor and management rewards to the farm families that made the shift. Unless the reform measures also are successful in altering the credit institutions enough to offset fully the shrinking effects on size of farm of borrowing compared to renting, the result is a net loss in income. From this, however, it cannot be inferred that the resulting loss in income is necessarily too high a "price" to pay for the privilege of having more farm operators who own their farms. In terms of the values which farmers who desire to be owners may possess or which lie back of the collective actions of society, it may well be worth giving up this much income and even more. There is, however, the alternative which needs carefully to be explored, namely, that credit facilities may be adjusted to compensate for the loss resulting from capital rationing when funds are borrowed. Thus far, however, the tenancy legislation that this country has initiated

[33] W. G. Murray, *Corporate Land, Foreclosures, Mortgage Debt and Land Values in Iowa, 1939*, Iowa Agricultural Experiment Station Bull. 266, Ames, December, 1939, p. 322. Interest rates rose temporarily after 1920, came back to the earlier level by 1923, and dropped substantially after 1933.

has not provided this type of compensating offset. Instead, it has allowed the shrinkage in size of farm to make itself felt.[34] In the second place, the unforeseeable windfalls and losses which arise out of changes in prices, interest rates, and technology make ownership, provided the property is heavily cumbered, a much greater gamble for the farmer than is the case when he rents. His capital assets may be doubled or trebled in a decade or wiped out in a few years. The tidal wave of farm foreclosures in the early thirties should be sufficient evidence of what may happen to the capital assets of a farm family when these are used in making a part payment in order to buy a farm.[35] It is perfectly plain that the incidences of uncertainty fall much more heavily upon farmers who are heavily encumbered than they do upon those who keep their assets in equipment, livestock, and other essentially liquid forms, as is the case more generally when the farmer is a tenant. Uncertainty, therefore, presents the second economic obstacle which must be fully taken into account when farm-tenure reforms are promulgated. Thus far it has not been reckoned within the schemes planned to facilitate more owner-operated farms.

[34] The tenant-purchase loan program of the United States government in 1938 and 1939 assisted 85 farm families in Iowa to buy farms. These farms averaged 144 acres in size. The average cost per farm with improvements was $9,923, whereas the net worth of the borrower averaged $3,113. On the surface it would appear that probably somewhat less shrinkage has resulted than would have occurred if these 85 farm families had supplemented their capital by borrowing from other sources; nevertheless, the general pressure is all in the direction of small farm units. No information is at hand as to the relative managerial capacity of the farmers given this aid.

[35] The foreclosed land from 1931 to 1935 represented virtually 9 per cent of all land in Iowa, with the holdings of corporations, chiefly insurance companies, reaching 11.9 per cent of all farm land, January 1, 1939 (see Murray, *op. cit.*).

13

Economic Effects of Agricultural Programs

AGRICULTURE HAS COME to require a good deal of attention in national housekeeping, a drift which has been worldwide in its scope, including both food deficit and surplus countries. Agriculture has been less successful than most other major sectors of the economy in coping with the rapid changes which came after World War I. Notwithstanding the fact that agriculture has approximated more closely the classical ideal of open and free enterprise, it has not shown the capacity to adjust itself. The troublesome twenties favored finance, industry, and labor, at least, with the illusion of well-being, while dwindling farm income and equity, the potion which was put to the lips of farmers, was bitter as gall. This drift toward more public efforts on behalf of agriculture set in soon after 1919. It passed through the stages of advice, assistance, and action. Not that there occurred at any one time a sharp break with the past, not even in 1933 when the New Deal came into command. The Federal Farm Board with its bold action program had just run its course.

Several features about public policies pertaining to agriculture are becoming increasingly plain. These economic policies are no longer passive. They cannot be described as primarily concerned with improving those rules of the game which would make a free enterprise economy freer. Nor are the difficulties that beset agriculture for which active policies have been invoked chiefly emergency in character. The notion of surpluses, droughts, floods, and relief may still be the popular notion of the nature of the farm problem, but these would hardly stand as an adequate diagnosis. Instead of emergency policies, the turn has been sharply toward active, continuing administrative controls. This has led to the development of a vast federal administrative organization and personnel with large federal appropriations at its disposal.

While there is increasing agreement that the economic affairs in agriculture do not run themselves and would not if they were left to do so,

there are nevertheless many who would prefer to let the virtually six million farmers much more alone than has been the case in recent years. One of the major purposes of this chapter is to set up criteria for ascertaining the economic effects of the action programs and administrative machinery vested in the United States Department of Agriculture and assess the results.

The agricultural policies and programs which have been developed demand critical examination. They are here. They are a going concern. They consist of a whole series of federal administrative techniques designed to attain what are presumably economic goals. It is, therefore, appropriate to start by examining the functions of these administrative techniques in relation to the problems within agriculture and, further, to inquire as to the probable effectiveness of these and alternative means, both public and private.

I shall indicate briefly the nature of the administrative techniques which the United States Department of Agriculture employs and to examine the economic effects which these procedures have occasioned.

1. Crop production control

Although crop production control schemes are a fairly recent innovation, at least on the grand scale in which they are being done, the economics implicit in these controls is fairly simple. These programs are based upon an application of the principle of production rationing. They take two primary forms: (1) that of rationing inputs and (2) that of rationing outputs of the farm. It is convenient, however, to separate further the rationing of inputs into two subclasses; namely, those inputs which are relatively durable, extending in the case of crop production over more than one crop, and those inputs which are transformed into products in a single crop year. Accordingly, we have the following types:

1. Resource rationing.
   a. Inputs transformed into products in one crop year.
   b. Inputs transformed into products over a period of crop years.
2. Market rationing.

Market rationing has been done by establishing quotas of the amount of product which the farmer may sell or process into salable products. The control of crop production under the AAA has been chiefly of the type 1*a* or a combination of types 1*a* and 2.

There are implicit in the control of crop production three kinds of economic effects; i.e., production, price, and income. The latter two are, however, resultants of changes occasioned in production.

To see how this technique of the AAA has worked, let us take the first type of rationing and sketch what happens when it is applied. Let it be assumed, for example, that the acreage which is allotted to a farmer for production of a given crop has been curtailed, and assume further, as is generally the case, that his price expectations for the crop take an optimistic turn because of the planned curtailment of output. Under such circumstances one of the following, or a combination of the following, lines of action is open to the farmer: (1) he may remove the poorest acres from production, (2) he may use better seed, more fertilizer, and take better care of the acreage he is allowed to crop, (3) he may employ the acres released by the allotment to produce substitute crops, or (4) he may use the acres taken out of the crop which is being reduced and improve his soil resources.

In more familiar economic terminology these alternatives involve the substitution of one resource for another (in the case of complementarity of two resources, the opposite, of course, would be true), the increase of one product at the expense of another product, and the substitution of present outputs for future outputs. Each of these is determined by its own marginal rate of substitution. In principle, therefore, the nature of the readjustments is readily determined. The application to actual situations, however, is exceedingly difficult because of the lack of accurate knowledge of the technical rates of substitution that actually apply in given types of farms.[1] Usually these have not been known with sufficient accuracy to predict results with much precision. Out of the experience of the AAA, however, there has accumulated a considerable body of evidence which provides a basis for estimating the nature of these substitution rates. It is now possible, therefore, to estimate within fairly reasonable limits the effects which rationing of land has upon crop production.

The technique which the AAA has employed has been to ration the crop acreage of given key crops. This has been done by allocating a specific acreage to each farm. The overall conclusion is: in most types of farming there has been sufficient flexibility because of substitution to offset the anticipated reduction in production of any moderate cut in acreage. As a consequence the crop production features of the AAA have been quite ineffective. It is only when drastic cuts in acres were enforced that any substantial change in production has occurred.

[1] Expected rates are the bases for farmers' decisions. See the author's article, "Theory of the Firm and Farm Management Research," *Journal of Farm Economics*, Vol. XXI, August, 1939; and also, Professor Black's amplification in the August, 1940, issue of the same *Journal*.

The experiences in the case of corn illustrate how shifts within the farm have offset production effects of the cut in corn acreage. The acreage reductions called for under the AAA in 1937, 1938, and 1939 reduced the acreage put to corn, in the six central Corn Belt states, by 8 per cent.[2] Corn production, however, in these states actually averaged 17 per cent more than in the earlier years in spite of the cut in acres. Furthermore, because there was more acreage in other feed crops, the total feed supply was in fact much larger than formerly. Since weather plays such an important role in determining the size of the corn crop of any given year, and because in each of the three years unusually favorable seasons prevailed, probably about one-half of the increase in corn production is ascribable to that factor alone. However, largely as a consequence of the AAA program, which includes not only the reduction in corn acreage but also its conservation and benefit payments, rotations were substantially improved by the use of practices which improved corn yields. Corn was cultivated better and the improvements made possible by hybrid seed were rapidly adopted.

TABLE I

Corn Production and Acreage Adjustments

	1928–32 average	*1937–39 average*	*1940*[d]	*1937–39 in per cent of 1928–32*	*1940 in per cent of 1928–32*
I Acreage[a]					
United States	103	92	86	89	84
6 central Corn Belt states[b]	39	36	32	92	81
3 western Corn Belt states[c]	21	13	12	60	54
II Production[a]					
United States	2,555	2,611	2,352	102	92
6 central Corn Belt states[b]	1,345	1,571	1,267	117	94
3 western Corn Belt states[c]	432	170	195	40	45

[a] 000,000 omitted.
[b] Iowa, Illinois, Indiana, Minnesota, Ohio, Missouri.
[c] Nebraska, Kansas, South Dakota.
[d] Estimates, production data taken from United States Department of Agriculture *General Crop Report*. Acreage data taken from *Crops and Markets*.
[2] Compared to 1929–32.

But this is not all. The AAA has induced an expansion in substitute crops, especially of soybeans and of the more productive legumes, with the result that even though corn production had been decreased, the total feed supply of concentrates and roughages combined would not have fallen even though the corn producing seasons had been normal.[3]

Finally it should be noted that as a consequence of the AAA corn program, partly because of the better rotations which were introduced as a result of crop control features and partly because of the supplementary income which farmers derived through benefit payments, more capital has been invested in soil productivity. Land has been improved. The agricultural plant in the heart of the Corn Belt has become somewhat larger than it was before the AAA programs began. This is the longer-run effect. Instead of shrinking the farm plant as was originally intended, at least by some who promulgated these programs, they have had the effect of facilitating plant expansion.[4]

The farmers in the wheat and cotton regions probably do not have at hand within the farm the many forms or wide range in which they may substitute and accordingly offset the effects of the rationing of cotton or wheat land.[5] The position of the corn farmer in this regard is probably unique. Nevertheless, the upshot is clear: the crop production control programs have confronted sufficient substitution of the type described to have made the efforts at control of production, ruling out the vagaries of weather, in the main, ineffective.[6] Drastic cuts in acreage in the first year or two do reduce production, but even in programs as drastic as those

[3] The range of substitution is, in the case of corn, not completed with the production of the crops. Most farmers have considerable latitude in the combination of feeds which they use. Accordingly, the conclusion seems fully warranted that a moderate reduction in the corn acreage allotted to Corn Belt farmers is not likely to have any effect upon the aggregate feed supply produced in that region. A more drastic rationing of the amount of land devoted to corn such as was undertaken in 1940 will change the composition of the feedstuffs available somewhat and may well reduce slightly for a year or two the amount produced. But even this more drastic cut in corn acreage in the Corn Belt is not likely to have any appreciable effect upon the type and volume of livestock produced. See W. W. Wilcox, *Livestock Production in Iowa as Related to Hay and Pasture*, Bulletin 361, Iowa Agricultural Experiment Station, May, 1937.

[4] For more detailed analysis of the effects of the corn program, see articles appearing in the *Iowa Farm Economist* during the late thirties.

[5] Given more time, for instance a ten-year period, a good deal of flexibility becomes available to cotton farmers. Resources may be redirected, and a "live at home" use of them substituted for cotton is an alternative frequently suggested.

[6] The effects of the high loan rates, especially in the case of cotton, are also involved here. Had there been no AAA acreage control, the loans would probably have expanded cotton output considerably.

that have been followed in cotton, within a few crop seasons the total output recovers remarkably in spite of a sharp cut in acreage.

The economist might well ask at this point whether or not the AAA has forced uneconomic use of resources upon farmers in spite of the substitution which they found possible. The answer is an unexpected one. It did quite the opposite. Most cotton, corn, and wheat farmers were not using farm practices which gave them optimum results. There was much lag in adoption of the best-known farming techniques which had been developed, and since the AAA programs had the effect of hastening the adoption of precisely these better techniques, they have actually occasioned, on a good majority of the farms, what is in essence increasing returns by forcing a recombination of the factors and an introduction of newer and better farming practices.[7]

The conclusion, however, stands that the administrative techniques of rationing the use of land, unless applied in an exceedingly drastic form, are not likely to reduce production appreciably.[8] It must be borne in mind, however, that the AAA has other important features, particularly its emphasis upon soil conservation and its distribution of benefit payments, which have been an integral part of crop production control techniques but the effects of which may be treated separately.

2. Farm commodity loans and storage

Worldwide depression and colossal crops mired the late Farm Board, but this experience has not kept the federal government from reinstituting loaning operations. While the crop production control features of the AAA have held the limelight, commodity loans and storages have been much more significant in their economic effects. The droughts of 1934 and 1936 paved the way for the ever normal granary; it appealed to non-farm people as consumers. They expected that it would stabilize food supplies in spite of the vagaries of weather. Farmers, too, looked upon the plan with favor, for it was plain to them that while storage stocks were being built up, the demand would be strengthened.

In the case of commodity loans and storage, it is not possible to turn to a simple set of economic criteria for testing the consequences of such

[7] This advance in production techniques, however, was probably more pronounced on the farms already using the better techniques than it was on those farms most in need of changing their obsolete practices; accordingly, the differentials separating the "poor" from the "good" farmers have been further widened.

[8] Here again the fact that the AAA was working against the "urge" of farmers to expand occasioned by the high loan rates, especially in cotton, must be taken into account.

TABLE II

Cotton, Wheat, and Tobacco Production and Acreage Adjustments

	Production (000 omitted)					*Acreage (000 omitted)*				
	1928–32 average	*1937–39 average*	*1940*	*1937–39 in per cent*	*1940 in per cent*	*1928–32 average*	*1937–39 average*	*1940*	*1937–39 in per cent*	*1940 in per cent*
Cotton[a] (bales)										
United States	14,667	14,235	12,741	97	87	40,541	27,518	24,406	68	60
2 western states[b]	5,690	4,316	4,155	76	73	20,003	12,027	10,649	60	53
3 delta states[c]	3,662	4,390	3,345	120	91	9,712	6,518	5,785	67	60
4 eastern states[d]	4,112	3,644	3,537	89	86	10,634	6,804	6,055	64	57
Wheat[a] (bushels)										
United States	865	854	792	99	92	60	63	53	104	88
4 hard winter states[e]	323	284	213	88	66	23	25	17	109	75
4 hard spring states[f]	206	164	219	79	106	18	15	13	82	74
3 soft winter states[g]	89	116	112	130	126	5	7	5	143	110
3 white wheat states[h]	90	98	86	108	96	4	4	4	93	89
Tobacco[a] (pounds)										
United States	1,427,174	1,596,004	1,268,912	112	89	1,872	1,788	1,437	96	77
6 states[i]	1,200,213	1,406,469	1,073,062	117	89	1,651	1,602	1,251	97	76

[a] Cotton data from United States Department of Agriculture *Cotton Report* as of October 1, 1940. Tobacco and wheat production data from United States Department of Agriculture *General Crop Report*, as of October 1, 1940. Tobacco and wheat acreage data from United States Department of Agriculture *Crops and Markets*, July, 1940.

[b] Texas, Okla. [c] Miss., Ark., La. [d] Ala., Ga., S.C., N.C. [e] Kans., Nebr., Okla., Texas. [f] N. Dak., Mont., S. Dak., Minn. [g] Ohio, Ill., Ind. [h] Idaho, Wash., Ore. [i] N.C., Ky., Tenn., Va., S.C., Ga.

programs; instead, the economics of storage presents a complex skein full of knots and loose ends exceedingly difficult to unravel. The complexity of the matter is readily seen when the alternative aims of storage policy are considered. From the point of view of the farmer, storage policy might be designed to (1) stabilize the annual income of farmers, (2) stabilize the prices of the crop, (3) stabilize the purchasing power of the farmer's crop, and (4) acquire the highest annual income for farmers; while from the point of view of consumers, it might be directed toward (1) stabilizing the standard of living of the consumers, (2) stabilizing the price of consumption goods, (3) acquiring the highest annual purchasing power of consumers or maximizing the total utilities of consumers.[9]

Broadly conceived, the aims of storage policy may be subsumed into two broad classes; namely, those which have the effect of altering the "distribution" of income and those which facilitate the allocative aspect of resource use, a classification following the dichotomy established in Chapter 2 and 3. Accordingly, storage programs may be employed either to transfer incomes from one group to another or to correct faults in the production, pricing, and marketing system. In the case of the latter, it becomes an instrument for obtaining more out of our agricultural resources, while in the former it is a scheme for transferring income from consumers to producers or the other way around. To decide, however, whether the interest of consumers should be favored at the expense of farmers or vice versa falls quite outside the province of economics. Such a decision is plainly a matter of ends; hence partakes of value judgments. But if the government decided on general welfare or on other grounds that the income of farm families needs to be supplemented, economic analysis demonstrates that the storage technique is both an ineffective and expensive way of going about it. Storages are in fact wholly inappropriate for attaining such a goal. To use them for that purpose not only lessens the effectiveness of the production-marketing machinery but also fails to effect any appreciable transfer of income in practice. There is accordingly some loss and little gain in using storages as a means to a solution of the income distribution problem.

This is not to infer that storages in the case of agriculture may not

[9] This classification of the aims of storage follows the analysis which has been developed in Dr. Adolf Kozlik's manuscript, "The Theory of Storage," growing out of his study on this subject at Iowa State College. The aims of storage policy outlined above are not by any means exhaustive nor do they include all the aims that Dr. Kozlik's analysis takes up. The interest of speculators and of those who operate warehouses and transportation are among those not included.

contribute substantially in bringing about improvements on the resource side. The plea here is simply that the two aims be meticulously separated because of the fact that storage programs are inappropriate in the case of one of these aims; and to attempt to use storage programs to change the distribution of income will not only lead to bad results, but, what is more, it is likely to discredit the technique to such an extent that it will preclude using storages to improve the production and marketing system.

Let us turn now to what has happened in practice in recent years. Farm commodity loans and storage were made an integral part of the crop production control program. They were made one of the major sections of the 1938 AAA Act. Because they were made a part of the mechanism of crop production control, it has been presumed that the loans and storage operations would be safeguarded, thus avoiding the quagmire in which the Farm Board floundered. In the AAA Act, loans and storages are a part of an intricate mechanism involving parity prices, annual changes in supplies, referendums, and subsequent participation and compliance in the program to reduce supplies. It is apparent, however, that the crop control features did not provide enough protection because of the ineffectiveness of these controls in practice.

Although the loan and storage program was started at the bottom of the depression and although it benefited from two history-making droughts, the loan rates have been sufficiently high and production large enough to result in an accumulation of stocks bigger than even the most liberal estimates of what is required for ever normal granary purposes. On March 30, 1940, the Commodity Credit Corporation had commitments outstanding totaling 950 million dollars. Half of these were tied up in commodities to which the corporation had title and the other half represented loans to farmers. The commitments to cotton amounted to one-half billion dollars, those to corn 300 million dollars, while wheat and tobacco and other crops reported much smaller figures.[10]

It is not easy to escape the conclusion that the mandatory loan rates specified in the 1938 AAA Act gave rise to loans which were out of line with the dictates of economic circumstances. In principle, what

[10] Commodity Credit Corporation Loans, March 30, 1940
(From *Agricultural Situation*, May, 1940)

Cotton	9,330,000 bales	$509,800,000
Corn	513,700,000 bushels	307,100,000
Wheat	106,000,000 bushels	75,600,000
Tobacco	194,000,000 pounds	39,800,000

happened is clear. The storage technique among other aims was employed to increase the current income of farmers by means of (1) curtailed consumption, (2) accumulation of stocks, and (3) lower farm income at some future date than would otherwise occur.[11] In practice, the storage program was dominated by the aim of increasing the current income of farmers, thus attempting to do with storages precisely what they are not suited for. Undoubtedly a good deal was accomplished in the use of loans and storages in the way of improving the use of resources, but this was overshadowed by mistakes and losses that came about because the two objectives were not kept distinct and separate. Mixing the two as is now the case not only results in some unnecessary loss to society but, also, it is frequently contrary to long-run interests of farmers.

The conclusion stands repeating. Storages are not an effective way of supplementing the income of farmers when that is deemed desirable as a part of public policy. The misuse of the commodity loan and storage technique is likely to discredit all storage operations and accordingly preclude the use of the technique for production where it has an important contribution to make. As will be shown in the final section of this analysis, the loan and storage technique may well provide one of the most direct and usable procedures for administrative guidance and control of agricultural production that has thus far been devised. Should this prove to be true, it would appear doubly important that the technique be spared an ill-fated and undeserved death.

3. Soil conservation

As in the case of crop production control, it is possible to frame the economics applicable to soil conservation in fairly simple terms. The operational problem which presents itself is that of equating the expected marginal efficiency of the capital invested in soil productivity with the marginal cost of such capital. What we have, therefore, is the task of determining whether to disinvest or invest in soil resources, which in principle does not differ from disinvesting or investing capital in the form of farm equipment, fences, buildings, drainage, or livestock. It is true that the rate at which capital can be added or transferred out of soil resources varies widely with each type of farming. Agriculture presents special technical considerations which classical writers drew upon for many of their basic empirical assumptions. Notwithstanding, the inputs

[11] Unless the government assumes the "losses" by diverting the excess stocks.

of capital associated with soil resources may take many forms. Some, like most fertilizers, are transformed into products in a single year while others, for example, a well-constructed tile drainage system may entail fifty or more years of use before the investment is exhausted.

However, this simple static input-output model, even when expanded to take account of the durable features of certain types of investments in soil resources is hardly adequate to get at some of the more significant difficulties which arise in the case of soil conservation. These difficulties are of the nature of divergencies frequently looked upon as differences between private and public interest. A more useful classification for economic study, however, is to take the divergencies which arise in soil conservation and examine them as they pertain to (1) cost, (2) revenue, and (3) expectations. It must suffice merely to illustrate these three types of divergencies.

In the case of cost, it is now generally recognized that the marginal cost to the farmer of improving, maintaining, or depleting the soil is frequently not the same as is the marginal cost to the locality. In some instances it is less to the farmer, whereas in others it is more; both types of situations are fairly general and of considerable importance. More specifically, many farmers have lowered their cost of production by using farming practices which induce both sheet and gully erosion. The resulting erosion has made farming more difficult on other farms which have borne the burden of the soil wash and also it has contributed to the filling up of streams and harbors. Plainly, a farm operated under such circumstances is not held accountable for all the costs which are actually incurred in the production of the crop. For example, the cost of dredging the harbors and streams and repairing the harm done on the land of other farmers which is occasioned by such farming practices is not borne by the crop which gave rise to these expenses. The converse of this situation arises when the cost of improving, maintaining, or reducing the rate at which the soil is being depleted is greater to a particular farmer than it would be if the cost were allocated to neighboring farms in accordance with the benefits which each receives from the investment. In the case of revenue, it is also clear that frequently the marginal revenue which a farmer obtains from a given investment in soil resources does not coincide with the true marginal revenue which such an investment produces. The most important instance of this type of divergency is rooted in the farm tenure institutional arrangements. As is often the case, the tenant would be warranted in making important investments, for example, in lime, terraces, and strip cropping in order

to maintain or even build up the soil resources of a farm he operates, provided it were possible for him to obtain all the benefits which would flow from such an investment. However, because of the insecurity of farm tenure, and because the tenant is not certain of obtaining compensation for unexhausted improvements of this nature, he usually is deterred from making the investment, although the expected returns from it exceed substantially the going rate of interest. We have not as yet learned how to harmonize a one-year lease with a five-year investment.

The least explored, and probably the most important, of these three types of divergencies between farmers and other elements in society (other individuals, the locality, state, or nation) is that which arises out of the differences in expectations. To pursue and develop this topic adequately, it would be necessary to establish the fundamental role of expectations to both production and consumption plans of farm families. This, however, would take us too far afield; moreover, the ground has been quite fully covered elsewhere.[12] There is a second task, that of applying appropriate expectation models in examining the conservation problem. It is frequently said that farmers are notoriously optimistic; anticipations of a bumper crop and boom prices keep hope alive long after the invisible hand of submarginalism has started closing its grasp. Land is farmed hard—exacting from it more than it can stand —in order to postpone liquidation. There is no doubt that many significant divergencies in the expectations between farm families and the community with reference to prices and yields are the source of important maladjustments in the use of resources. But far more consequential is the part which low incomes play in shaping expectations which result in production plans that "exploit" the soil.

What have soil conservation efforts of recent years accomplished? The official figures of the AAA and SCS are not very helpful in making an appraisal. There are virtually no systematic studies which get at economic effects; therefore, it is necessary to depend on general observations, recognizing full well the limitations of such a procedure.

The major contribution of the AAA, SCS, and public efforts generally in the field of conservation has been to increase our awareness of the problem. The malady of soil losses creeps in on farmers too slowly to make them conscious of what is happening; as with hookworm or malnutrition, those affected usually have no knowledge of its presence. It has taken the shock of dust storms let loose by droughts and of mud

[12] See especially Hart, Hicks, and Kaldor.

left behind by floods to awaken farmers and others. The systematic "propaganda" of government, community agencies, and schools has done much to focus attention upon the misuse of soil resources. Should public efforts in behalf of soil conservation be discontinued, undoubtedly the main legacy of the efforts of the past several years would be found in the greatly increased awareness that people generally, and farmers in particular, now have of the problem.

Another accomplishment has been the advance in agricultural technology which has been induced by federal programs. As was indicated in the discussion of crop production control, farmers have lagged considerably in adopting the best-known farming techniques. The most advanced farm techniques permit farmers—especially in the Corn Belt, to a considerable extent in the Cotton Belt, and to a relatively limited degree in the case of wheat production in the Great Plains and intermountain states—to maintain soil resources or even improve them without foregoing income currently.[13] The AAA and the SCS have induced many farmers to adopt these more advanced farming practices. Much of the slack between what was known in technology and that which was put in practice has been taken up, especially on the better income-producing farms. There has been, therefore, a real advance in applied technology partly ascribable to the efforts that have been made collectively in behalf of soil conservation. This gain is both real and significant to farmers and to society generally.

How much the federal programs have accomplished in correcting the misuse of soil caused by low farm incomes is not readily ascertainable. In the first place, the nature and scope of the relationships between soil exploitation and inadequate farm family incomes is not well understood. The situation probably is about as follows: (1) The income which many farm families earn is so small that they are forced by sheer necessity to deplete soil resources of the farm on which they are situated in order to increase their current income; that is, they disinvest soil capital in order to acquire at least "minimum" diets, shelter, and other elementary necessities. This along with lack of knowledge is the heart of the conservation problem, especially in the Southern States. (2) Many farm families in their effort to make capital available for

[13] W. W. Wilcox, "Economic Aspects of Soil Conservation," *Journal of Political Economy*, Vol. XL, October, 1938. It is possible, not probable, since multiple factors are at work, that even in the Cotton and much of the Corn Belt advances in the technology have merely offset soil losses, thus hiding the true nature of soil depletion.

education and other investments to improve the human agent find it necessary to disinvest their soil resources in order to obtain the necessary funds. This problem is of special significance because it can be shown readily that the type of investments involved in this situation, that is, expenditure for education, vocational training, health, and funds to facilitate migration to new opportunities, usually yield an exceedingly high rate of return, and yet it is quite impossible to obtain funds for this purpose in the capital market. No one would advance credit for these ends because there is no way of obtaining a "chattel mortgage" on skills, talents, and improvements in the human agent occasioned by such investments. As a result, the farm family with inadequate income to pay for these items has no choice except to disinvest its capital assets —these might well involve machinery, buildings, and livestock but more frequently they are in the form of soil resources—and transferring them into investments for developing their sons and daughters where the rate of return is usually much higher than in soil resources.[14] It does not seem that federal programs have been successful in getting at these phases of the conservation problem, except to the extent that farm incomes generally have improved, partly as a result of the efforts of federal programs, but more largely because of the improvements in economic conditions all around.

In sum and substance, what the federal soil conservation programs have done is about as follows: (1) Considerable effort has been made to reconcile the marginal cost of maintaining soil resources to the farmer with the marginal cost to the locality. The most specific step in this direction has been the promulgation of soil conservation districts. (2) While there has been considerable agitation to correct the institutional faults in the prevailing farm tenure systems, relatively little has been accomplished thus far, chiefly because this is primarily a state matter. Here we have one of the more serious shortcomings of Corn and Cotton Belt agriculture. (3) Relatively little has been done to lessen the adverse effects of low farm family income upon soil disuse.[15] This factor probably accounts for the largest annual soil toll. Its interrelationships with the conservation problem are only vaguely understood;

[14] The first step, of course, is to mortgage the farm, provided it belongs to the operator and his family. But in the case of the encumbered owner, the effects of capital rationing soon make themselves felt. See my discussion of this point in the *Journal of Political Economy*, Vol. XLII, June, 1940.

[15] The grants and aids provided by the AAA for specific farm practices have become increasingly more suitable to the needs of the small farmers and have come to have some merits in supplementing incomes of poor farmers.

certainly there has not been any direct successful attack thus far in governmental programs. (4) Real strides have been made in facilitating advances in agricultural technology and have led to better husbandry of soil. (5) And most important of all, as far as positive results are concerned, has been the advance that has been made in the awareness of farmers and of the public generally of the nature and extent of the conservation problem. The lack of knowledge of how to handle land is still a major obstacle to be overcome.

4. Supplementary farm income—government payments

There has been developed a series of administrative techniques to supplement the income of farm families through government payments. These payments are made directly by check drawn against the federal Treasury. They are of the nature of conditional grants allotted in the main on the basis of criteria designed chiefly to aid commercial farms. These payments represented a sizable fraction of the total farm income in the cotton, corn, and wheat regions as may be noted from the data in Tables III and IV.

An analysis of the economic effects of government payments introduces many perplexing problems. In the first place, there is the question of the purpose of these payments. To what extent are they rewards necessary to induce farmers to make specific adjustments such as reducing the acreages of given crops and adopting soil conservation practices, and to what extent are they a means for supplementing the incomes of the recipients quite aside and in addition to rewards for sacrifices entailed in making adjustments? In the second place, there is the whole problem of establishing criteria for allocating supplementary income where the second of the two purposes indicated above is involved. And in the third place we are confronted with the question of the effects of supplementary income upon (1) the mobility of resources, (2) rent and price of farm land, (3) the returns to the farmer for his labor and management, (4) the risk and uncertainty involved in farming, and (5) the attainment of ends which are considered necessary when incomes are supplemented by public action.

Government payments to farmers are a mixture of rewards for production adjustments and extra income. The federal agricultural programs have accomplished a good deal in each of these two fields. Those pertaining to production have already been commented upon in connection with technological advances, the implementation of certain soil conservation practices, and the curtailment of the acreage of specific crops. Those

TABLE III

Percentage of Total Farm Income Contributed by Government Payments [a]

	1936–38 average	*1939*
North Atlantic	0.8	1.6
Western States	2.6	6.1
South Atlantic	4.3	9.1
East and West North Central	4.6	9.5
South Central	7.7	17.3
United States	4.4	9.5

[a] Bureau of Agricultural Economics report of May, 1940, on state estimates of cash farm income and government payments by months, January, 1936, to December, 1939.

TABLE IV

Percentage of Total Farm Income Represented by Government Payments by States, 1939

Alabama	24.3	Idaho	9.0	Michigan	5.3
North Dakota	21.2	New Mexico	8.9	Virginia	5.3
Mississippi	20.6	Arizona	8.8	West Virginia	4.4
Texas	20.0	Illinois	8.7	Maine	4.1
South Dakota	18.6	North Carolina	8.4	California	3.4
Arkansas	18.2	Wyoming	7.8	Maryland	3.3
Georgia	17.0	Colorado	7.5	Florida	3.2
South Carolina	16.0	Indiana	7.4	Vermont	2.8
Louisiana	15.8	Minnesota	7.4	New Hampshire	2.2
Oklahoma	14.3	Kentucky	7.3	Pennsylvania	2.1
Montana	12.8	Wisconsin	6.8	Nevada	1.7
Tennessee	12.0	Oregon	6.3	New Jersey	1.5
Nebraska	11.4	Washington	6.2	New York	1.0
Kansas	10.9	Utah	6.1	Connecticut	0.9
Iowa	10.5	Ohio	6.0	Massachusetts	0.9
Missouri	10.2	Delaware	5.5	Rhode Island	0.5

pertaining to supplementary income are reserved for this section. The two objectives, however, have been tied together in that the farmer who participated in a program for the awards on the production side also received the extra income payments. However, farmers who have been induced to make adjustments in production are not necessarily the ones who are earning inadequate incomes.

PYRAMIDING OF GOVERNMENT PAYMENTS ON FARMS WITH HIGHEST INCOMES. The 1939–40 Iowa Farm Sample Survey, which gives a cross-sectional view of Iowa agriculture, obtained data on government pay-

ments. These data, when classified according to net income, showed that Iowa *farm operators* received government payments as follows:

According to net income	*Average amount* [a] *received in 1939*
Upper third	$350
Middle third	179
Lower third	152

[a] From unpublished data growing out of Witt and Hopkins' study of low-income farmers in Iowa.

Farm operators whose net income was below $700 in 1939 received on the average $127 of government payments. In none of the above figures is the payment to landlords included.

The Iowa farm business records for 1939 [16] show plainly that government payments to farmers have been largest on the better farms in the best sections of the state earning the largest incomes. In the Big Creek Watershed in Decatur and Ringgold counties in southern Iowa payments [17] on 109 farms averaged $277 against $1,196 for 146 farms in central Iowa. The net farm income of the first group was $1,205 and of the second $4,212. These figures speak for themselves. It should be noted, however, that the Central Iowa Association probably represents the best farmers in that section of the state while the Big Creek is more representative of all farmers in that section. But this fact only gives added weight to the argument that government payments do not effectively get at the income problem.

In principle, there is little doubt that government payments made conditional upon specific production performance should be kept separate, both in analysis and in operation, from grants which are made conditional upon performances which are of the nature of consumption.[18] One of these focuses attention upon the firm and the other upon the household. One deals with the use and combination of resources and the other with the utilization of the social product. Accordingly, the criteria for making conditional grants aimed at production adjustments are based on wholly different fundamental criteria from those pertaining to adjustments in consumption. Because the firm and the household are so closely intertwined in agriculture, it might be presumed that little may be gained by treating these two components separately.

[16] See Macy, Jensen, and Allbaugh, *Iowa Farm Business Records for 1939*, Iowa Agricultural Extension Service and Experiment Station cooperating, 1940.

[17] Since certain gains from corn sealing operations are included in the figures that follow, government payments as used here are not comparable with earlier tables.

[18] Meaning performances in adopting better diets, health facilities, education, etc.

TABLE V

GOVERNMENT PAYMENTS INCLUDING INCOME FROM CORN SEALINGS OF SELECTED IOWA FARMERS

Farm business association or group	*No. of farms*	*Average acreage*	*Crop acres*	*Payments received per farm*	*Payments per farm acre*	*Net farm income*	*Management return*
Central Iowa	146	279	205	$1,196	$4.29	$4,212	$2,085
Mississippi Valley	150	260	163	878	3.38	3,554	1,637
Northwest Iowa	156	251	190	843	3.36	3,910	1,905
Cedar Valley	142	248	162	705	2.84	3,254	1,417
Northeast Iowa	129	238	149	562	2.36	2,799	1,083
SCS Tarkio Area	128	190	121	452	2.38	2,033	508
SCS Big Creek Area	109	234	102	277	1.18	1,205	68

Even when it is desirable on analytical grounds to separate the two it is impossible in practice to do so. There is some merit in this line of reasoning because in practice it is exceedingly hard in the case of a farm to separate the decisions which affect the household plans from those which relate to production. Consumption and production on the farm are still very much an organic whole. Nevertheless, the processes associated with production are not only definable but distinguishable from those which involve consumption. The differences are made explicit when we turn to the criteria of each. Government payments aimed at adjustments in the use of resources relate to such features as land, crops, productivity, and to farm practices such as terraces, strip cropping, and use of fertilizer. When the aim of government payments is to supplement income, then the point of focus becomes one of performances which are associated with consumption; and since the interest of the public is involved, they very properly might become conditional upon performances with reference to diets, clothing, education, and socially desirable migration. This should make apparent the importance of clearly differentiating the aims to be accomplished because it determines the type of program necessary to distribute such payments.

When we turn to the question of what has happened as a result of the government payments to agriculture, relatively little can be said. The reason is simply that no work has been done to ascertain the effects of government payments upon the consumption of farm families and, on the production side, upon the capitalized value of farmers' resources and upon the mobility of such resources. Undoubtedly, the effects have been quite mixed in that some of them have shown up on the resource

and others on the income side. In some cases, land values and rents have increased as a result of the government payments; [19] in others this has not been the case. In some regions the rewards have gone to the human agent as a "premium" for management, whereas in others they have become embedded in the value of resources. It appears plain that the risk and uncertainty involved in farming have been measurably affected by the government payments. These comments at best merely suggest some of the important issues to be examined in any systematic study of the effects which government payments have had upon agriculture.

5. Positive proposals

It is of the nature of knowledge that findings should lead to recommendations for action. In what has preceded I have examined the major features of the agricultural programs except those which pertain to credit, marketing, and consumption. In addition, however, there are many lesser considerations which have some bearing upon agricultural affairs which have not come within the compass of this treatment, but about which implicit presuppositions must be made in the proposals which follow.

The present crop production control features of the AAA should be discontinued in favor of other control techniques. A transition period will be required; it will be harder to change over to alternative controls in the case of cotton than in other crops. The transition will be the least difficult in Corn Belt agriculture.

The commodity loan and storage program should be shifted to deal strictly and exclusively with the allocative aspect of resources, which means that storage policy should not aim to effect income "distribution." This change in focus will entail rather fundamental reorientation in the expectations which farmers and farm leaders have with regard to loans and storages. Administratively, the storage technique will have to be freed from any mechanical and rigid formula specifying loan rates in terms of any two, three, or even more variables, including the formulas based on parity prices. It will not be easy to make this shift because of the deep-seated public belief that more adequate farm incomes must somehow be "earned" through rewards meted out by the pricing process.

[19] There is reason for increasing concern on this score. Owners of land resources were getting more and more of the additional income paid to farms in government payments. In the heart of the Corn Belt some owners were replacing their tenants with a wage manager, thus collecting all the payments. Others, and more generally, were squeezing the tenant with higher cash and incidental rents.

Furthermore, it is not a change which the policy and administrative personnel of the United States Department of Agriculture may make without regard to the "canons of good policy" held all along the line, nor can farm leaders be expected to take this step until there is an understanding of the principles which are involved in solving this problem on the part of the rank and file of farmers.

Once, however, this shift in aims is made, I am convinced that this administrative technique which has been developed around the use of loans and storages opens the way for effective guidance and control of agricultural production on a level at which governmental action may successfully complement the essentially free enterprise economy of American agriculture. The loan and storage operations may then be employed to guide and direct the use of the nation's agricultural resources along lines which will optimize the use to which they are put.[20] This would require that the loan rates that are established and the storage stocks that are accumulated be determined by production, marketing, and consumption criteria, which would leave the task of supplementing the income of farm families to other procedures to be discussed below. In order to guide production effectively, it is necessary to announce the loan rate well in advance of the time that farmers start making plans for the production of the new crop.[21] By taking this step the government would introduce two new important considerations into agricultural production. In the first place, on the basis of the best knowledge and information that can be obtained by the central agency, a loan rate would be announced which would be effective for the forthcoming crop. This rate would be in effect the minimum price, and with sufficient storages it also would tend to be the maximum price, which would guide farmers in making their production plans. It would have a pronounced advantage over the present AAA procedure in that it would permit each farmer to combine his resources in light of the cost-price structure of his farm. The farmer, therefore, would maximize the output of his farm on the basis of the input-output ratios which confront him in his operations. He would accept the loan rate as one of the given

[20] The notable exception will be in the essentially marginal areas. Loans and storages will not be effective devices for contracting agriculture in, say, the cotton or wheat areas; however, it is plain from experience that the crop control features of AAA were also least effective in these very areas. It will be necessary to use wholly different techniques to correct the kind of problems found in the large areas which are from time to time marginal or submarginal.

[21] With some modification, this technique is applicable to livestock plans and production. It is, in fact, even more important in livestock than in many other areas.

conditions on which to base his plans. In the second place this action would transfer from the farm to the central government agency the task of bearing certain price uncertainties which arise during the time span that the farmer is in process of producing the crop.

Much of the inefficiency in the way land, labor, and capital are used in farming has its origin in the uncertainties which confront the farmer as he plans and carries through his production operations. These uncertainties are of two major classes: (1) those which have their origin in the economy outside of the farm and which are transferred to the farmer through prices at which he sells and buys; and (2) those which are specific to the resources of the farm which in the main have their origin in the vagaries of nature. Farmers are technically quite inefficient in making adjustments to bear the incidence of uncertainty because most farms are exceedingly small businesses and because the resources at the farmers' command do not give them the necessary flexibility for adjusting to unexpected change. But to the extent that farmers attempt to attain this flexibility, they occasion the inefficiencies referred to above.[22]

The proposal [23] that the loan rate be announced a year or more in advance of the time the crop is harvested will place the burden of formulating expectations upon the federal government, which has at its disposal expert knowledge and information of local, national, and international conditions, the significance of which can never be accurately and adequately diffused to all farmers, no matter how well and how intensively the present outlook programs are done. Enough experience has grown out of the Farm Board and New Deal operations to indicate that the government can make announced loan rates work when coupled with storage operations. Also, the gains and losses which would occur because of variations in crops and, also, but to a less extent, those arising out of changes in demand and technology may be handled so as to cancel out. The fact remains, however, that the most salient stumbling block to this proposal is the widely held belief that more adequate farm incomes must be "earned" through the prices which are received

[22] The present program of crop insurance gives promise of becoming a successful administrative technique for pooling and allotting the risks that arise out of the variations of weather. Gradually it will probably be possible to charge the costs of carrying these risks back to agriculture, thereby embedding them in the land values of the section. The procedure should protect individual farms in their year-to-year operations while burdening the value of land with the cost of the risk insurance against the hazards of weather found to be typical of that section.

[23] This proposal, made in 1940, has been developed somewhat more fully in Chapter IX and in Chapter XII of my *Agriculture in an Unstable Economy*. For a comprehensive analysis, see D. Gale Johnson, *Forward Prices for Agriculture*.

for farm commodities, which makes it exceedingly difficult to use loan rates to guide and direct production rather than to "distribute" income.

With regard to soil conservation, less emphasis should be placed upon direct controls which specify the nature of the farm practices which a farmer may use. The soil conservation problem is at bottom largely an income, institutional, and educational matter. Accordingly, more stress needs to be placed on those types of social engineering which will improve the institutions which determine farm tenure arrangements, credit facilities, the responsibility of the locality for group action in land use, and the knowledge of farmers. And above all it is necessary to take more positive action in supplementing income, specifically of those farm families where inadequate incomes cause them to disinvest soil capital.[24]

Government payments to farm families might well continue to claim substantial budget appropriations because of the large number of farm people, especially in the South, with wholly inadequate incomes [25] to feed, clothe, and house themselves and to educate and move their children to places of better opportunity. The present criteria for distributing government payments to agriculture need to be overhauled. The payments should be shifted, in the main, from a production to a consumption basis, the latter to include capital investments in the human agent. This change will necessitate less emphasis upon farm land and other material resources and more upon farm people; hence less stress on the commercial aspects of farming and more upon measures of social welfare. The diets, shelter, education, and mobility of the large numbers of children which are being reared in farm homes are of vital concern to society. They are our replacement stock of tomorrow. Their health, training, and ability to migrate where they are most needed is vested with a good deal of public interest. It is necessary that government payments be distributed increasingly in such a way that they will reach the particular farm families with inadequate incomes and that they will help rather than hinder socially desirable migration.

[24] The grants and aids which AAA is giving for certain farm practices might well be expanded and made an important feature for supplementing the income of farmers with inadequate incomes.

[25] In the wholly objective connotation of that term: inadequate income in terms of social welfare criteria publicly agreed upon, meaning that society through approved governmental policies decides that it is to the interest of all to raise such inadequate incomes to the level dictated by the agreed upon social welfare criteria.

14

Spot and Future Prices as Production Guides

THE CLAIMS commonly made for the existing (private) markets for farm products substantially overestimate their efficiency as institutions for guiding agricultural production. These markets, including those with highly organized spot and future prices, for the most part have not been developed to bring about an optimum allocation of resources in agriculture. They serve primarily to clear the supplies made available from day to day. The more highly organized markets probably serve quite adequately the managers of elevators, processors, exporters, and other traders who want to hedge and those individuals and firms who want to acquire a long or a short position in commodities. These functions are important, but they are only a part of the pricing problem that confronts us in developing markets that will, among other things, induce farmers to make an optimum use of agricultural resources.

I Central Argument and Setting

I take it for granted that it is one of the primary functions of farm prices to guide the allocation of resources in agriculture. I endeavor to show: (1) that the resource malallocations that have become embedded in American agriculture are to an important extent a consequence of farm product prices; (2) that the existing markets for the different farm products vary greatly in their efficiency as production guides; (3) that the principal underlying cause for these differences is the amount of price uncertainty placed (imposed) upon farmers at the time they make their production plans; (4) that the underlying conditions determining the price effects of stocks have largely been such that *among* the markets of the different farm products, the more durable the product, the greater the price variations and the resulting price uncertainty imposed on farmers; and (5) that *within* those markets having both spot

and future prices the two sets of prices have been determined by the same supply and demand forces, with one exception, and that within such markets neither the spot nor the future price has been as meaningful to farmers in making production plans as has the spot price in the markets of most of the more perishable farm products.

The setting of this chapter is restricted to the American scene, with its highly commercial agriculture, producing a wide range of perishable and nonperishable commodities. I assume that the fundamental values and beliefs of our society and its supporting institutions are such that in the case of agriculture, where firms are small and numerous and where entry is easy, prices should perform the function of inducing farmers to allocate properly the resources employed in agriculture. I am mindful that parts of American agriculture are seriously encumbered by the adverse effects of resource maladjustments, representing a fundamental disequilibrium consisting of an excess supply of labor and a deficiency of capital, especially in many sections of the South. Moreover, in any short-run context prices alone, no matter how perfect, will not do the job of correcting these widespread maladjustments, certainly not in a year or two. Yet I do contend that a set of meaningful prices is an important necessary condition in bringing about the desired solution of this problem.

This analysis is restricted to two types of prices; namely, to the cash-spot price, defining it as the price on the cash market for spot delivery, and to the forward-future price, consisting of the price in the futures market for forward transactions. For the sake of brevity, it will be convenient to omit the qualifying terms "cash" and "forward" and refer to the first as the spot price and to the second as the future price throughout the remainder of this chapter.

II Farm Product Prices and Resource Malallocations

How meaningful are spot and future prices of farm products to farmers in making their forward production plans? The answer, of course, depends upon the existing conditions. No doubt it is possible to lay down conditions under which either a spot price or a future price would specify the optimum allocation of resources in agriculture. These conditions, however, have not existed nor are they readily attainable in a dynamic economy which is beset by a great deal of supply and demand uncertainty, and which requires long-range production plans as is the case in agriculture.

So far, no satisfactory theoretical link has been forged bringing together the two ends of this chain. Much indeed has been written about anticipations and expectations, and on the role of flexibility and liquidity in an effort to achieve this linkage. However, the results of these efforts to date in terms of useful insights have been quite meager. Economic analysis as yet appears to have relatively little to say that is meaningful about the problem of economic uncertainty, unless it be that of pushing the problem aside. We do not have at hand an analytical framework for handling in an integrated and consistent manner both spot decisions and forward decisions with regard to consumption, savings, and production under dynamic conditions with uncertainty present. If this is the state of economic knowledge, there is little point in merely reviewing what has been done in this sphere.

To advance our thinking in this area, it will be necessary to take those bits of economic apparatus that we do have and use them the best we can in selecting the conditions that appear to characterize, in this case, the agricultural sector of the economy. This procedure of trying to classify and then to select the important essential conditions would seem to be a necessary preliminary step to the formulation of the problem at hand in such a way that more fruitful theoretical work can be undertaken. Unless this is done prior to the setting up of models, there is the danger, since all sorts of conditions can be imagined as being relevant, of merely concocting models ad infinitum.

Inasmuch as American agriculture is made up of a wide variety of products and markets, the differences among them should make it possible by means of comparative analysis to acquire some insights into the underlying circumstances that enter into the pricing problem. On the presumption that some farm products have had a better system of prices than have others measured in terms of the effect of prices upon the allocation of resources in agriculture, two general approaches may be followed. One of these is to study these differences with a view of isolating the underlying causes and the other is to examine the observable effects and see whether these throw any light upon why it is that some farm product prices seem to do a better job than others in terms of resource allocation.

In carrying forward a comparative analysis of this kind, it is necessary to specify those aspects of resource allocation to be studied and then to classify farm products according to the degree of malallocation that characterizes the production of various farm products. There are, of course, a number of different aspects to the problem of achieving an

optimum utilization of farm resources. For our purposes it will be convenient to specify three types of resource settings. They are as follows: (1) resource commitments for the *distant future,* meaning by this forward resource decisions that are fixed for more than one production period; (2) commitments for the *near future* consisting of forward decisions that are fixed for one production period; and (3) the *spot* situation covering decisions that involve only a (small) fraction of one production period. In the case of the third of these, the spot situation, I shall in effect put it aside by assuming that the spot price does allocate the farm supplies (resources) that are offered and taken at any given moment in an optimum manner. This assumption means that, even though, for example, strawberries were in short supply in Market A and were to glut Market B on a given day, the spot price in Market A would achieve an optimum allocation of the strawberries among existing sellers and buyers in that market, and the spot price in B would do likewise. It may well be true, of course, that the two markets could be integrated with considerable net advantage. This aspect, however, of spot prices will not be entered upon in this chapter.

This leaves us with the resource settings 1 and 2, the distant and near future decisions as defined above. Is it possible to classify our major farm products under these two headings and rate each according to the degree to which the existing utilization of resources employed to produce the product departs from an optimum utilization? Although such a classification bristles with difficulties, there is considerable evidence at hand—enough in fact to permit some judgments. A few general remarks are necessary, however, before attempting such a listing. The war and early postwar years, fortunately, have lessened very appreciably the widespread underemployment of major categories of resources in agriculture. It is clear that this underemployment was simply a counterpart of the mass unemployment in other parts of the economy. As a result, as resource relationships have tightened up, it is possible to see more clearly than before the character of the malallocations that are embedded in agriculture. It should, of course, be noted that the classification that follows is based on certain beliefs about the normal values of farm products and of the resources required to produce them. These, however, are not likely to be in serious dispute.[1]

[1] In making the listing that follows I found it quite beyond the scope of this chapter to include a systematic review of the economic data and studies that offer some insights on the resource malallocations that exist in American agriculture, commodity by commodity. A considered statement of the assumptions underlying such a classification and the materials that I have brought together are so consider-

1. Long-term departures from optimum

Among the major farm products, milk undoubtedly heads the list with the smallest departures in relation to what may be considered an optimum use of farm resources. This judgment regarding the production of milk applies to the principal milk sheds producing milk for the industrial-urban populations. Hogs and corn in the heart of the corn belt and poultry, including eggs where they are one of the main farm enterprises, would appear to rank somewhat below milk. Soybeans and perhaps other feed grains would come next. These products may be taken as a group for the differences among them in terms of resource malallocations are not very marked. A second group of farm products may be identified consisting of cattle in the main breeding areas, wheat where it is the principal farm enterprise, flaxseed, sheep and wool. These products appear to fall below the first group in long-range malallocations of farm resources. Far below both of the above groups, we have a third cluster consisting of rice, peanuts, cotton, and tobacco with the first two in this group not nearly so far down the list as are cotton and tobacco.

Before examining the implications of this list of long-term departures from an optimum utilization of resources to farm product prices, let me explore briefly a classification of some of these farm products in their short-term setting. In the case of the listing already presented we were dealing with maluses of labor, land, machinery, and of other fairly durable capital forms in agriculture. These maluses of resources have been of long-standing. They arose out of resource decisions that committed the distant future. Moreover, production decisions by farmers to reduce or eliminate these departures also require long-run forward commitments. There are, however, another set of departures from an optimum which arise out of the way in which agricultural resources are employed —chiefly within a single production period. The rate at which a farm product is produced from year to year with a given set of resources consisting of fixed amounts of land and machinery, varies widely because of the way in which stocks, mainly feedstuffs, are handled in agriculture.

2. Short-term departures from optimum

This list will be restricted to animals and animal products since not enough is known about the alternative contributions of stocks in the

able that, while they cannot be included in here, they may deserve space and attention on another occasion. The order in which the various farm products appear in the list below should be viewed as a tentative and preliminary rating, as a rough first approximation.

case of most of the other farm products. Corn and other feed grains are of course an integral part of the livestock economy, and the departures to be noted for animal products in the short run are caused primarily by fluctuations in the yields of feed crops and by the way in which feed stocks are used to counteract these fluctuations. Here, again, fluid milk must be placed at the top of the list, followed by cattle, sheep, poultry, including eggs, and hogs appear to belong at the very bottom.[2]

To return to the main query: how meaningful are farm product prices to farmers in making forward production decisions? If we assume that the resource malallocations that have been observed are the result of shortcomings of the existing system of farm product prices, we would conclude on the one hand that the market for milk, a highly perishable product with no future prices, has been relatively efficient in guiding the allocation of resources in agriculture; and on the other hand that the market for cotton or for wheat, consisting of products that are quite durable and the storage of which is not very costly, with highly developed spot and future price quotations, has been quite inefficient in bringing about an optimum utilization of resources used in growing these two important crops. This comparison between milk and cotton or wheat brings to the surface one of the deep-seated biases of economists to the effect that a highly developed market with price quotations for spot and for near and distant future transactions continuously subject to change is distinctly superior to one that does not have these pricing features. There is, so it seems to me, a strong presumption that economists generally have been prone to overrate greatly the performance of highly organized commodity markets as an institutional means for achieving an optimum allocation of resources in the production of farm products.

In making this comparison there is, of course, the underlying assumption that these differences among farm products in resource malallocations are in some significant sense the effects of our system of farm prices. Undoubtedly a good deal can be made of the imperfections in the capital and labor markets that serve agriculture. Capital rationing is widespread; and unguided private migration of people out of agriculture has not been sufficient to drain off the excess supply of labor in many farming areas. These imperfections, however, are not unrelated to the ways in which farm product prices are made. In fact some of the more important causes for capital rationing and for the underemployment of labor in agriculture have their roots, so it appears, in the be-

[2] See Table I of Chap. VI in *Forward Prices for Agriculture* (University of Chicago Press, 1947), by D. Gale Johnson.

havior of farm prices. We shall therefore proceed on the assumption that the resource malallocations that have been associated with forward commitments, both for the near and distant future, are at least in considerable part the effects of the existing system of farm prices.

III Conditions Underlying Prices That Cause Resource Malallocations

Let us turn, then, to an examination of what it is about farm prices in this context that causes these resource malallocations. Can we get any useful clues from the theoretical conditions presumed to be necessary for an optimum allocation? Taking as a starting point the proposition that the spot price does equate the spot supply and demand situation, under what conditions will this price be a perfect guide in making production plans? Obviously, if production could be achieved instantaneously, we would expect the spot price to be a perfect indicator. But when forward production plans are required because of the technical circumstances that surround production, very unusual and special conditions must be postulated in order to make the spot price a perfect forward price. The useful distinction between a market price and the normal price is an elementary recognition of the differences between these two situations. Inventories and storage have always been viewed as a connecting link. Fresh fish has been the classical illustration where day-to-day market prices fluctuate widely around the normal price. If the product were durable and the costs of carrying supplies forward were negligible, the spot price would presumably be a better guide to use in making production plans than it would be if the product were highly perishable. In the case of agriculture, however, most of the output is highly perishable in character. Animal products generally must be viewed as perishable in this context and these account for about 70 per cent of all the farm resources used to produce food in the United States.[3] In addition most truck crops and many of our fruits and vegetables are also highly perishable. More disconcerting, however, is the fact that in agriculture the farm products that are least perishable have for the most part the poorest record in terms of resource allocations.

The real difficulty arises out of considerations of economic uncertainty, and it must be admitted that our theoretical apparatus is still too weak

[3] Raymond P. Christensen, *Efficient Use of Food Resources in the United States* (Tech. Bul. No. 963, U. S. Department of Agriculture, October, 1948), p. 39.

a reed for the task. Liquidity in the way assets are held, flexibility in the way resources are committed, and diversification to lessen the dispersion of income receipts, are all parts of the long chain of effects of yield and price uncertainty. They afford some insights with regard to the costs of adapting production to yield and price uncertainty, but they have not been very meaningful in formulating the necessary conditions with uncertainty present for an optimum allocation of resources. Similar observations seem to be in order on the usefulness of the prevailing notions on expectations and anticipations.

What we need to get at in this problem is some conception of uncertainty that is sufficiently restricted to have meaning in relation to the events we are trying to understand. To get such concepts we are driven back to empirical observations for the essential restrictions. In the case of agricultural production, I believe some headway can be made by simply looking upon the variations in yields and prices that are not subject to the control of the farmer as indices of the uncertainty that affects adversely the use that is made of farm resources. I am led to this approach by the fact that these variations appear to be closely associated with the resource malallocations listed earlier in this paper.

The following observations will have to suffice in indicating briefly and tentatively the importance of these variations to the problem at hand. They are restricted throughout to the main producing areas. We take first the long-run departures from optimum.

The production of livestock and of animal products generally is subject to comparatively little yield uncertainty. In producing these products the typical farmer can control the yield that is achieved within fairly narrow limits. If we leave aside the effects of periodic fluctuations in feed supplies upon livestock production, the yield uncertainty that remains, for instance in producing fluid milk, is probably of the order of 2 to 5 per cent.[4] This element of uncertainty is somewhat larger in cattle and hogs than it is in milk and it is possibly twice as large in producing poultry and eggs.

The yield uncertainty that confronts farmers in producing field crops must be seen in two fairly distinct settings. One of these consists of any single crop year for which the yield uncertainty of each of the major crops, except rice, is very large, ranging possibly five to ten times as large as that of milk. In a long-run setting, however, these variations in crop yield become appreciably less and need not burden production

[4] That is, given a set of inputs, the rate of output can be controlled within these limits through more than one production period.

appreciably more than they do in livestock, provided that farmers make forward production plans covering a number of years on the basis of expected acreage yields and that they have the necessary capital to manage regardless of how the small and large yields are distributed over this period of years.[5]

In relating the variations in farm prices to the long-term departures from an optimum allocation of resources, it is very hard to untangle the variation in prices caused by fluctuations in yields from those that pertain to the long-run value of farm products. The principal shortcoming of the existing system of farm prices arises precisely out of this fact; namely, that it does not separate these two aspects in pricing farm products. From the point of view of a typical farmer making long-run forward commitments, the farm price for fluid milk probably rates comparatively high among major farm products as a meaningful price because it is encumbered with less uncertainty in this context than are other farm prices.[6] Even so, however, the variations in the price of fluid milk cause several times as much uncertainty as do the yield variations in milk. Taking the price for milk in this connection as a kind of standard, it appears that the prices for poultry (including eggs), cattle, sheep, and hogs follow in that order but fall substantially below milk, with hogs in about the same class as our major field crops. The situation in crops is obviously much more acute; the prevailing price uncertainty is probably several times as large as that affecting milk.

The short-term departures from optimum listed earlier require a brief comment at this point. The particular malallocations are to be ascribed to fluctuations in the supplies of feed. They affect principally livestock and animal products. The fluctuations in feed have restricted substantially the control that farmers have achieved over the production of livestock. As among the different kinds of livestock, hogs have fared the worst and milk production the best with cattle and poultry, including eggs, in an intermediate position.

Building on this brief survey of yield and price variations in agriculture I shall base my analysis upon the following propositions: (1) that there are yield and price variations in agriculture which give rise to economic uncertainty of various forms that can be identified and

[5] In fact, however, few farmers have had at their command enough capital to manage their operations through thick and thin of our "cycles" of good and bad crops without being disturbed by the distribution of their income over time.

[6] In making this statement I am quite aware of the fact that the market for fluid milk is so organized that some of the variations in yield are transferred to butter and other dairy products.

measured; (2) that these uncertainties affect adversely the production plans of farmers, and the larger the uncertainty the larger the malallocation of resources; (3) that the variations in yield, and the uncertainty which they give rise to, are relatively unimportant in the production of livestock, and with sufficient capital, they would also be quite unimportant in the production of crops over the long pull; (4) that the variations in farm prices are an important source of uncertainty and one of the principal causes for the observed malallocation of resources in farming; and (5) that the existing markets for the different farm products vary greatly in the amount of price uncertainty that they place (impose) upon the forward production decisions of farmers.

It therefore becomes necessary to inquire why the markets for the different farm products vary so much in this respect. Is it because of fundamental differences in the amount of uncertainty inherent in the production and consumption of the various farm products? Or is it because of the way in which the different markets function, given their existing organization and state of development?

On the basis of the knowledge we have regarding the fundamental components of uncertainty in its long-run setting, albeit very limited, I cannot find any convincing reasons for supposing that certain classes of farm products are inherently quite free from long-run uncertainty considerations while other farm products are necessarily burdened very heavily with such uncertainty.[7] If we take the long view, why should the production and consumption of hogs be shrouded in so much more real uncertainty than that of milk? Why should the underlying situation with regard to corn be basically different from that of animal products generally, since virtually all of our corn is used to produce animal products? Nor do I see why cotton or wheat should be on a wholly different footing in this connection from that held by milk and other animal products. These observations, of course, do not establish the fact that no important differences exist on this score; however, they do create a presumption in favor of my position. Taking this view, I shall assume that each major farm product is subject in the long run to the same basic elements of uncertainty. On this assumption we shall examine further the different systems of farm prices. The hypothesis by which we shall be guided may be put as follows: The variations in farm product

[7] At this point I have in mind those aspects of uncertainty that are inherent in those supply and demand developments that (gradually) change the values of farm products distinguished from those short-run aspects of uncertainty that have their origin in the over-all instability of the economy.

prices that create uncertainty for farmers in making forward production plans differ importantly from one farm product to another because of the way in which the different markets are organized to minimize (or is it to maximize!) price variations and not because of intrinsic differences in the underlying uncertainty inherent in production (farm supply) and in the consumption of farm products.

IV Market Response to Uncertainty Considerations

I know of no direct way of putting this hypothesis to a test at this time. We have neither the apparatus nor the necessary data. However, several indirect approaches may be indicated that afford some clues regarding the validity of this view. We may look, for instance, upon the role that stocks perform in the different markets and try to ascertain whether they in effect increase or decrease the price uncertainty in agriculture. We need to examine afresh the interrelations of spot and future prices for clues. Still other approaches may be indicated.

Take the function of stocks. What are the price effects that arise from the storability of a product? It is convenient for my purpose to describe two types of situations. The first of these is as follows: If the underlying conditions with regard to the distant future were consistent with stability, it can be shown that stocks will reduce the fluctuations of farm prices. Under these conditions, given a durable and a perishable product having the same price and income elasticities and confronted by like variations in supplies and demands, the price of the durable product will fluctuate less than will the price of the perishable commodity. Practically everything that has been written about commodity markets, including that which has appeared on the organized exchanges with spot and future transactions, has been based, usually quite implicitly, on the above assumption with regard to underlying conditions. The broad outlines of the price effects of stocks under these conditions can be stated quite briefly. In the case of a highly perishable product, like cut flowers, for example, none of the variations that occur either in the supplies of or in the demands for this product can be counteracted in any way by stocks; on the other hand, with a more durable product, like corn, similar variations in supplies and demands can be cushioned by the accumulation and deaccumulation of stocks.

It is noteworthy that markets with future price transactions have not been developed for perishable products, but only for those where the product is sufficiently storable to permit carrying stocks forward through

the period during which a given future is open. In short, future prices as they have developed in our commodity exchanges are merely an aspect of the same price-making forces that determine the spot price. The future price under these circumstances simply complements the spot price. The two sets of prices are highly integrated, with stocks acting as the integrating factor. This web of spot and future prices is broken under only one set of circumstances and that is when there are not enough stocks on hand to maintain a link between spot and future prices. When this situation occurs, carrying costs have no meaning [8] for there are no stocks to be carried forward and the spot price, therefore, bears no necessary relationship to the lower limits to which the future price can fall. However, with this one exception, the spot price and the future price of a product measure the same supply and demand forces.

How much insight can one obtain with regard to our hypothesis by using this apparatus? Two observations are in order. First, as a theory for explaining the price effects of stocks, it is, to say the least, incomplete. As it stands it is inconsistent with some of the crucial facts regarding farm prices established earlier in this chapter. The facts appear to be that over the years the prices of the more perishable farm products in general fluctuated less than have the prices of the more durable farm products. There is a strong presumption in favor of the view that the storability of a product in many instances has been a major source of price variability and of the resulting price uncertainty under discussion. The second observation pertains to the meaningfulness of a future price compared to a spot price to farmers in making their forward production plans. Purely as an indicator, the future price would not differ from the spot price except when there were insufficient stocks to maintain the usual linkage between spot and future prices.[9]

We turn now to a second type of situation in examining the price effects of stocks. If the underlying conditions with respect to the distant future were essentially inconsistent with stability, it can be demonstrated that stocks will increase rather than reduce the fluctuations of farm prices. When circumstances are such that those who deal in farm products are motivated into becoming sellers as a consequence of falling prices and conversely as a result of rising prices, the storability of a product acts as a cause contributing to price variations. Again, for

[8] To express this situation as one that entails "inverse carrying charges" is a statement without any economic content although it may be of some statistical interest.

[9] Whether, when this exception occurs, the future price is a better or a worse guide for production depends on additional circumstances.

purposes of illustration, let us take a perishable and a durable farm product with the same elasticities against price and income and with the same production and (normal) consumption variations. Let us suppose that rising prices have induced dealers to become predominately buyers. In the case of a perishable product, like fluid milk, it is not possible to withhold stocks from the market by accumulating them; and accordingly, the supply variations inherent in the technical conditions of producing milk continue to determine the supply of milk made available. It cannot be disturbed by the actions of individuals and firms who want to increase their long position in commodities. Therefore only the variations in demands for current consumption can be altered.[10] Compare these price effects of stocks with those of a durable product like cotton. The supply of cotton is easily disturbed because buyers can readily accumulate stocks and thus withhold a part of the crop from cotton mills and from consumers.

This set of conditions and the consequences that they indicate in terms of price variations would support our guiding hypothesis. Given these conditions, it follows that markets for the more durable farm products are subject to more price variation than are the less durable products. Since future price contracts are available only for the more durable products, we would expect to find these products to be among those showing the larger variations and thus transmitting more price uncertainty to farmers as a result. Here, too, several observations may be made.

First, there are convincing reasons for believing that the reoccurring circumstances that give rise to the kind of price motivations that characterize the second of these two types of situations are very comprehensive and general in their scope. They pervade the economic climate of the whole economy; they are not specific to agriculture or to any other major sector of the economy. They obviously are not more specific to some farm products than to others. What we observe is simply that the durable farm products are much more vulnerable to this over-all shifting of positions than are the perishable products.

A second remark pertains to the fact that as our economy has developed the opportunities open to individuals and firms for going long or short, with a view of "hedging" on short notice against a marked change in the value of money, have been progressively reduced. As this has occurred, it seems reasonable to suppose that those markets which still

[10] In milk the resulting changes in the demand for milk are primarily those arising out of income effects.

afford this opportunity have been put under additional strain. This is an aspect of the oft-repeated observation that inflexibility at one point forces more variations at those points where flexibility continues to exist. The inference is that the commodity exchanges may well have become burdened by some of this additional buying and selling motivated by conditions far removed from the specific supply and demand circumstances of the product per se.

It may be useful in closing to compare the position of the future price to that of the spot price to farmers. These inferences may be drawn from the argument advanced in this chapter.

The spot price dominates the pricing of farm products. The future price is of minor importance, simply because it does not exist for most farm products. The output of agriculture in the United States consists predominantly of perishable products, and these do not have future price quotations.

For those farm products for which future prices are available the spot price is fully as reliable as a guide for production as is the future price because the future price and the spot price are not independent of each other; instead, they are highly integrated and therefore reflect the same market forces, with the one exception when current stocks are insufficient to provide the linkage that normally exists between spot and future transactions.

In the case of the exception noted above, the future price could be a better guide than the spot price for farmers in making their production plans. This suggests that if future transactions were developed for perishable farm products covering a time span sufficiently long to preclude the carrying forward of stocks, the future price under these circumstances would of necessity be essentially independent from the spot price. A development of farm product markets in this direction, it appears, could make the future price decidedly more meaningful to farmers in making production plans.

There remains, however, the disturbances that affect farm prices adversely that originate out of the instability of the economy as a whole. These disturbances can and do express themselves more fully in markets with future prices than in markets with spot prices.

Do these disturbances establish such limitations on pricing farm products that it is not feasible to develop a system of markets that will provide farmers with a meaningful set of forward prices? Further inquiry into the problem posed by this question is greatly needed.

15

The Brannan Approach to Farm Prices

THE PROPOSAL [1] of the Secretary of Agriculture, Charles F. Brannan, recommending that the Congress abandon parity for a new up-to-date income standard, replace the old list of "basic" farm commodities for one that includes such important products as whole milk, eggs, farm chickens and the meat animals (hogs, beef cattle and lambs) and not try to support the market price of perishable farm products but let them clear the market and make up the difference between the announced price "support" and the price received by farmers by means of direct income payments to farmers—came as a shock to most Congressmen, to many farm leaders and to the public generally. Farm price policy had moved in a well-worn groove ever since the early thirties when the concept of parity became established. It is true that the Agricultural Act of 1948 passed hastily during the closing hours of the 80th Congress provided for a system of flexible price supports and for a modernization of one aspect of the old parity formula, namely in determining the relaships among farm prices, and yet these improvements were both well within the established pattern. The Brannan approach at the outset has appeared to many people as representing a new start in price policy, in fact, a radical departure from that which had gone before. Those closest to the accepted thinking in much of agriculture, viewed it as an abandonment of the most sacred tenets of the hard-won legislative gains of agriculture. It will become apparent from the argument underlying this chapter that the departure is more apparent than real in terms of the economic content of the approach. If any aspect of the proposal is radical

[1] The Secretary of Agriculture placed his ideas before joint meeting of House Committee on Agriculture and the Senate Committee on Agriculture and Forestry on April 7, 1949 and he had occasion to make a supplementary statement before the House Committee on April 25, 1949. To place his ideas before the Congress H. R. 4753 and S. 1882 were introduced on May 18, 1949.

it lies in its appeal to the consumer in the way the prices of perishable farm products are to be managed, a procedure of much merit after the wasteful potato episode of 1947 and 1948, and the fact that the Secretary of Agriculture in advancing his proposal did it in a way that took agriculture and price policy out of the calm bipartisan atmosphere in which it had been allowed to bask and subjected it to the rough and tumble of partisan politics.

The Brannan proposal has one basic defect and on the other hand, it embodies a number of changes that appear as marked improvements over existing farm price legislation. The defect is one that it has in common with virtually all of the early post war thinking on farm price supports and that is a serious overevaluation of farm products. If the new income standard were to be put into effect, it would for at least a number of years price farm products even higher and therefore price them out of their markets even more than would price supports based on the old 1910–14 parity. The flexible features of Title II of the Agricultural Act of 1948 are not included and this omission gives the proposal an even greater upward bias in determining the level at which specific farm products are to be given price supports. It may be noted, also, at this point that the proposal is not conceived as a counter cyclical measure. Then, too, it would probably increase rather than diminish the income inequality that exists within agriculture. Like all price support approaches it does not come to grips with the widespread and socially significant problem of poverty embedded within agriculture. Instead, like other pricing measures in this field it proposes to give economic benefits principally to those farmers in agriculture who are normally fairly well up on the American income ladder.

The outstanding merits of the proposal should, however, not be overlooked. It seeks to free the markets handling perishable farm products from the many obstacles that price support operations have created; and, if the proposed "production payments" were employed, it would be a big step forward in getting away from the concealed dumping of farm products into which this country has drifted (outlined in some detail in Chapter 18) and away from the price maladjustments imposed by public actions on farm prices within the United States. The new list of commodities is much more meaningful than is the old group of "basic" commodities, if farm prices are to be given support. There is also real merit in the attempt to establish a more recent base for the price formula thus breaking with the old parity which has become obsolete by almost four decades and to provide a base that would stay somewhat

more up-to-date, which is the objective of the 10 year moving average embodied in the proposed income standard.

It is necessary to go back to certain basic considerations in undertaking any critical evaluation of the economic aspects of this proposal. It will become clear, however, as we proceed that the above conclusions regarding the defects and merits are fairly demonstrable. The analysis that follows rests on certain presuppositions and since these are basic to the argument they should be made explicit, although they may seem altogether obvious and elementary. These presuppositions are: (1) In some meaningful institutional context the role of consumer's choice *should* be maintained and improved. The choice of consumers should be expressed freely and efficiently in the belief that they are necessary to determine the value of the components that enter into the social product. The value of farm products and of the resources employed to produce them are no exception. (2) A system of relative prices of both products and resources *should* be maintained and improved. It should be the means by which economic decisions are coordinated in the belief that it can be made an efficient mechanism for guiding the allocative decisions of producers consistent with freedom, progress and other fundamental objectives of our society. (3) The problems that arise out of business fluctuations *should* be resolved by means that will not diminish the effectiveness of consumer's choice and the capacity of relative prices to guide the organization of production. (4) The social objective of lessening the inequality in incomes (the personal distribution of income among individuals and families) *should* also be achieved with the least possible impairment of the function of consumer's choice and of relative prices as production guides.

These presuppositions are open to several qualifications. One of these bears on the function of consumer's choice in the case of food, inasmuch as our society is agreed that it is desirable to encourage children to form good food habits consistent with our existing knowledge about nutrition. The school lunch program is pointed in that direction. Obviously, other means might also be used to achieve this end, both for children and, in principle, for adults as well. Another qualification arises when stockpiling and other measures are taken for reasons of national security. These and other qualifications, however, do not establish a case for the overall drift clearly evident in price support programs that seriously impair the role of consumer's choice. The pricing of potatoes is not an isolated example. Many farm products have been diverted, dumped, or destroyed, although the evidence has been less dramatic than it has

been in potatoes. The plea of the Secretary that most farm products are perishables and therefore cannot be withheld and handled once they have been produced and sold by farmers without obvious waste, points up one of the difficulties that has arisen. It does not take account, however, of the widespread impairment of consumer's choice that has occurred in pricing the more durable farm products. Nor would production payments in handling perishables under the conditions envisioned in the Secretary's proposal give full and effective expression to consumer's choice. It would, of course, do so in distributing the supply, that has been produced and sold by farmers, among consumers and other users, but not in guiding the allocation of agricultural resources during subsequent production periods.

I Setting of the Pricing Problem as of 1949

The war-induced boom that got under way in 1941 has virtually spent itself, certainly as far as food is concerned, and farm prices are returning, as a consequence, to their peace-time positions relative to other prices. Meanwhile, it has become increasingly apparent that the price support program carried forward from the war period is forcing the USDA to accumulate stocks of wheat, corn, cotton, and of other storable products in extraordinarily large amounts, is likely to place major sectors of the United States agriculture under crop controls and market quotas and is about to put the USDA in an all but impossible situation in dealing with such major perishable products as hogs. These developments should not have come as a surprise, for it was easy to foretell these rather obvious economic consequences of existing farm legislation. In addition, however, there has arisen a pronounced political impetus for increasing price supports even further, motivated in large part by the desire to keep farm income from falling substantially; partly to create a need for and to justify the use of the old production control machinery; partly to exact a very considerable monopoly price from consumers, following in this matter the notable success of the tobacco group; and partly to take advantage of the turn of the election and the presumed claim of farmers on the successful party. The economic indicators, however, all point to adjustments in existing price supports that lie in the opposite direction from that in which the political process is headed. For example, if production control and marketing quotas are to be averted, or at least kept at some minimum, it will be necessary to lower the existing level of price supports. If some semblance of economic

order is to be maintained in dealing with big and small crops, a schedule of support prices will be required to obtain some measure of price flexibility, consistent with year to year changes in the supply. If perishable farm products are to be given a "support price," income payments of some sort will have to be employed, virtually of necessity.

This brief review of the setting in which we find the issue of pricing farm products suggests a curious incongruity between the economic realities which are rapidly unfolding and the political configuration which provides the stage on which policy is made. Who is there that can reconcile these two aspects of social action? Regardless of the outcome, the value of farm products must be determined.

II What Value Should the United States Place on Its Farm Products?

In ascertaining the value of farm products, a mistaken view has been taken in much of the argument about agricultural price policy. The proposal of the Secretary of Agriculture is no exception. Farm products simply do not have as high a value as farm leaders would like to believe. One might ask: should farm products be valued as high as they were during the war and the early post-war years? The reply is obviously in the negative—unless war were to occur. Should they be valued at the old parity, leaving aside for the moment the appropriate relationships among farm prices and considering only the ratio of the average of all farm prices received to prices paid by farmers? A clear-cut answer can be had from the drift in commodity markets starting last fall and still under way. For all who are willing to look at what is being writ, the answer is an unqualified—No.

How much farm products will be worth during the next few years is the crucial issue in any attempt to evaluate the level of prices specified by either the old 1910–14 parity or by the 1939–48 income standard proposed by the Secretary of Agriculture. There are essentially two ways of taking our bearings on this matter. One consists of formulating an empirical judgment about the value of farm products on the basis of economic forces and developments under way, and the other is to consider the valuation process in principle and indicate the formal results that emerge.

On the empirical side, the evidence is about as conclusive as it can be that farm products are not as valuable in the United States as the pro-

ponents of the various price support programs are maintaining. About a year ago, the Committee on Agriculture of the House of Representatives printed an important study made by the Bureau of Agricultural Economics on *Long-Range Prospects for American Agriculture.*[2] The assumptions underlying this study were carefully formulated, although decidedly on the optimistic side. The following conclusions are noteworthy: With high employment, the ratio of prices received to prices paid by farmers would approximate parity; with intermediate employment, the average level of this price ratio would be in the neighborhood of 85; and with depression conditions, it would drop to about 67. My own efforts[3] to gauge the value of farm products for the years immediately ahead, say for the next three to five years—assuming that unemployment does not exceed four million, that we export and import farm products at competitive prices, that ample stocks are maintained for emergency purposes, and that agricultural production continues at its present level—indicate that the prices of farm products will rule (average) as much as 15 to 20 per cent below their current level relative to other prices. If this were to occur, it would mean taking the existing legal parity as a measure, that farm prices would decline (relatively) from a parity of 105 (as of February 15, 1949) to a parity as low as 85 to 90 provided farm products were allowed to clear the market.

Before taking up the more formal aspects of pricing products in line with their value, we may dispose of one important question: Does the Secretary's proposed price support program break with parity? If parity is taken to mean the 1910–14 base years, then clearly the Secretary has not tied his program to parity. But such a narrow definition of parity would be a mere quibble. The 1939–48 base period employed by the Secretary performs the same function in determining the ratio of prices received to prices paid by farmers as it does in the 1910–14 base under existing farm legislation. To call it an "income standard" does not alter its function—a rose by any other name is quite the same. What, then, is to be achieved by shifting the base forward from the five pre-World War I years to the ten most recent years? Instead of introducing a period with a ratio of prices received to prices paid by farmers more nearly in line with the real value of farm products, it further overvalues farm products taken as a whole. While it is difficult, with the materials

[2] See Table I, p. 18 of the Committee Print *Long-Range Agricultural Policy,* for the Committee on Agriculture of the House of Representatives, 80th Congress, 2nd Session, March 10, 1948.

[3] See the author's analysis, appearing mainly in Chapter 3, in *Agriculture in an Unstable Economy,* New York: McGraw-Hill, 1945, and in Chapter 18 below.

now available, to make a precise comparison, it is plain that the 1939–48 period is about six per cent on the wrong side of the 1910–14 base period.[4]

This much is fairly evident: In making price policy for agriculture, the basic question of the value of farm products is not being faced, and until it is, no satisfactory solution can be achieved of the waste and misuse of farm products that arises whether they are dumped abroad, diverted to inferior uses at home, or accumulated as stocks in quite unmanageable amounts, and of the inefficient use of agricultural resources that arises when recourse is had to acreage allotments and marketing quotas and to other measures intended to control agricultural production. The question which has been put to the forefront in agricultural price policy has focused primarily on farm income; namely, how large a share of the national income should be distributed to farm families? The unwillingness of farm groups to consider the shortcomings of the 1910–14 parity in pricing farm products; the recent efforts to increase price supports in terms of parity and to put off going over to flexible price supports, are all indications of the growing income orientation underlying agricultural price policy. The statement of the Secretary on April 7, justifying the proposed income standard is unmistakably clear on this point.

The fruit of economic analysis is not being garnered. Instead, some of those who speak for agriculture are reaching for the forbidden apple, and for the adverse consequences that go with that act.

Two very misleading rationalizations are being advanced for the view that the size of the farm income that is desired should come first, and that all other considerations should be put in a secondary position. One of these is the assertion that under no conditions will lower farm prices reduce agricultural production because when farm prices decline, agricultural production is independent of farm prices. Under special conditions, for example, when many resources are unemployed in the nonagricultural sectors of the economy, lower farm prices will not induce a transfer of labor or of capital out of farming. But this conclusion simply is not valid when the industrial-urban sectors are operating at a high level of employment and production. Moreover, even when unemployed resources are large, a shift in relative prices within agriculture will in-

[4] In exhibit A, "Provisional Definition of Income Standard" included in the statement by the Secretary of Agriculture of April 7, 1949, is an index of prices paid by farmers, constructed so that it averages 100 for the years 1939–48. The old parity ratio for these years averaged 106.4 See *The Economic Report of the President, January,* 1949, Table c-22, p. 121.

duce farmers to shift the use to which they put the resources under their control even though no overall contradiction may occur. The second assertion that is frequently made is to the effect that acreage allotments and marketing quotas will check and control agricultural production whereas farm prices will not do so. This belief is closely akin to the first, although its source makes the assertion much more suspect, for it is usually those individuals who have a vested interest in the old agricultural control machinery who go all out for this view. Two remarks are in order. In the first place, the experiences of the late thirties indicate that the control programs, except under the drastic restrictions imposed upon cotton, did not reduce the output. In the second place, and much more important, under conditions of full employment both theory and practice provide no support for the view that relative prices will not bring production in line with demand.

The contributions of economic analysis to the *resource allocation* and to the *income distribution* problems have been presented in Part I above.[5] In sum and substance, the analysis tells us that the price-making mechanism is not an appropriate apparatus for lessening the inequality in the personal distribution of income. If it were, why do we encumber ourselves with a complicated system of progressive income and inheritance taxes instead of simply increasing the price of the resources which the particular families who should receive more income have to sell? To attempt to use price supports for this purpose will have two highly undesirable consequences: (1) it will seriously impair the capacity of prices in allocating agricultural resources, and (2) it will affect adversely the distribution of income within agriculture in spite of the restriction imposed to limit the size of the benefits going to large farm operators.

III By What Procedure Should Farm Products Be Priced?

Prices are simply a way of organizing and managing economic activity. Different pricing procedures, it may be presumed, will do this job with different degrees of efficiency. What we want in this case is a tolerably efficient way of pricing farm products.

One procedure is to place more of the task of price-making than is

[5] See also Theodore W. Schultz, *Redirecting Farm Policy*, New York: Macmillan, 1943; *Agriculture in an Unstable Economy*, New York: McGraw-Hill, 1945, especially Part IV; and D. Gale Johnson, *Forward Prices for Agriculture*, Chicago: University of Chicago Press, 1947, Chapters 2 and 3.

now the case upon privately organized institutions subject only to governmental rules and regulations. The arguments in favor of doing this are quite powerful. It would eliminate the obvious malallocations in agricultural resources caused by existing price support and control programs. These uncoordinated aspects of farm prices would quickly disappear as they did for the most part during the years from 1941 to 1948 when neither price floors nor ceilings were effective. It would bring about a complete separation of the problem that arises in achieving *an optimum allocation of resources* from that of attaining *a more equal personal distribution of income*. Unless this separation is achieved, the efficiency of whatever pricing procedure is employed will be seriously impaired. The unstable conditions that characterized the period from 1914 to date have placed an undue strain on the existing price-making institutions. The fault for the wide swings in prices that occurred did not necessarily lie at the door of these institutions, they merely reflected the general instability that so profoundly affected the entire economy. The fact remains, however, that one of the unfortunate legacies of the Great Depression is a widespread loss of faith in the efficacy of free markets.

The shortcomings of privately organized markets in this field must also be considered to the extent that their efficiency and acceptability as price-making institutions is affected. The argument advanced in the preceding chapter indicates that these institutions have not provided farmers with a meaningful futures price—meaningful either as a guide in making production plans for the next production period, which is commonly from one to three years on ahead, or as a hedge for safeguarding their forward commitments. Future price transactions which have been developed by the organized commodity exchanges serve other purposes. The private marketing system, as we have known it, has not performed the storage function at all satisfactorily. Here, again, it is not the short-run distribution of stocks which has been seriously at fault, but the distribution of stocks to bridge large and short crops, the most important being the accumulation and disaccumulation of feed to counteract the wide fluctuations in feed production caused by our continental climate which continues to affect our livestock economy adversely.

A more serious limitation than either of the two already noted, although not unrelated to them, has been the year-to-year (leaving aside the seasonal fluctuations) variations in farm prices and the uncertainty that these variations have imposed on farmers. In Chapter 14 above, it is argued that over the years, the prices of the more perishable farm products have fluctuated less than have the prices of the more storable

products, and that the misallocation in resources which have become embedded in American agriculture, that is, the inefficiency with which capital and labor are employed, including the matter of the scale of the farm, appears to be closely related to these variations in farm prices. If the preliminary analysis appearing in Chapter 14 is sustained, it would indicate that product storability has not acted to stabilize prices from one year to another as it should, but on the contrary, has been a factor contributing to price instability in the market setting which has existed. It may well be true, however, that this perverse effect of storage has been brought about by the overall unstable conditions, and that the corrective lies in monetary, fiscal, and other general policies. From a policy and research point of view it is obvious, so it would appear, that much more attention should be given than is now the case to ways of removing these limitations with a view to strengthening and enlarging the role of private price-making institutions. In any event, it is a fact that despite all of the farm programs which have emerged, these markets still perform a major function in pricing farm products.

Another procedure in pricing farm products is to provide for governmental action to supplement the existing privately organized markets in two directions, namely, in the field of storage and in safeguarding farm income in the event of a depression. On first thought, it might appear that this is essentially what the existing price support programs are trying to accomplish. But even a cursory glance at the accumulation of cotton, wheat, corn, and other farm products prior to the war, and that taking place very rapidly at present, indicates that storage is not the result of a carefully developed storage policy, but rather the consequence of holding the farm price of these products at some specified percentage of parity, regardless of storage requirements. Our storage operations are, therefore, merely a by-product, a hit-and-miss affair, without design or principle. The United States is very much in need of a storage program which will not only give us adequate stocks of the right products held in the right places for national security, but which will also come to grips with the problem that is inherent in the widely fluctuating feed supply of the country.

What about safeguarding farm income in the event of a depression? The arguments for governmental action of this type are presented in Chapter 9 above. It may be useful to restate briefly the discussion on criteria and procedure appearing in Chapter 9. Is parity based on 1910–14 or on the Secretary's income standard a meaningful criterion for determining when a depression is under way in the United States? The

answer must be in the negative. Although the new income standard specified 26,234 million dollars for agriculture in 1950, no one would contend that in the event the farm income were to be exactly 26 million dollars, therefore unemployment would be widespread and the aggregate income and demand of the U. S. economy would be down and depressed. On the contrary, the farm income in 1950 could fall several million dollars and the economy as a whole might be experiencing another inflationary period. The same remarks may be applied to the old parity or to farm prices held at no higher than 90 per cent of parity.

To safeguard farm income in the event of a depression, as set forth in Chapter 9, it is necessary to ascertain with reasonable accuracy when a depression is at hand and when it is over. What is needed is a measure of events affecting economic expectations in the urban industrial community. Whatever indicators are used for this purpose, they should not be based upon agricultural production, prices, or income. The principle of drawing a sharp line of demarcation between agricultural and other industries for this purpose is exceedingly important.[6]

Once a depression exists, and leaving it to the political process to determine to what extent the income of farmers should be maintained, how is this objective to be achieved? Obviously some way must be found of supplementing the income of farmers under these conditions. Here we have the case for "Compensatory Payments." These payments should accomplish the following: (1) reduce the instability of farm income caused by business fluctuations, (2) do this in a manner and at a time that will make the payments countercyclical in their effect, and (3) make the payments to farmers in a way that will not disturb agricultural production or the trade in farm products.

This proposal does not envisage the interference of the government in pricing farm products. It would leave market prices free to clear the supply and demand, regardless of how deep or widespread the depression. Moreover, as an administrative technique, it is fully as applicable to storable as to perishable farm products, and in principle, no distinction should be drawn between them.

An important alternative procedure in pricing farm products would be to undertake a system of forward prices to complement the existing price-making institutions. This step would strengthen such institutions in precisely the area in which they are weakest, since they do not provide farmers with a set of relative prices that are efficient as production

[6] See Theodore W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, p. 223.

guides, but instead impose much unnecessary uncertainty upon farmers. The basic characteristics of forward prices are few in number and extremely simple: (1) the prices should be announced sufficiently far in advance to enable farmers to adjust their production programs to the prices, (2) the prices should cover a sufficient amount of time to permit farmers to complete their production plans, (3) the prices or price schedules which are announced should be clear and precise so that farmers can readily interpret their implications for themselves, and (4) the prices or price schedules adopted should be those which achieve the desired output.[7] It is plain that the Secretary of Agriculture has not proposed a system of forward prices which will achieve the output desired and to announce them in advance of the time farmers make their commitments for the next production period. Again and again economists have taken the pains to point out that prices based on parity, whether they be tied to 1910–14 or to a recent 10 year period are inescapably backward in their orientation. Parity is dependent upon a formula. The formula is dependent upon history, and history does not choose to repeat itself. No formula based on either the near or distant past can tell us much about the present value of farm products, and even less about the relative prices that will be efficient in guiding agricultural production. There are, of course, ways of making any particular parity or income standard less harmful than it would otherwise be; one way is to allow a wide range of administrative discretion as in the early AAA legislation, and another way is to build in various kinds of flexibilities. The merit of Title II of the Agricultural Act of 1948 lies in the fact that it provides a much needed kind of flexibility.

[7] *Forward Prices for Agriculture,* already cited. Introduction, p. 11.

PART IV

International Economic Relations

16

Food, Agriculture, and Trade

THE MAIN, EARLY, POST-WAR developments affecting food, agriculture, and trade consist of:

1. The transition from grants and relief by lend-lease and UNRRA to purchases paid for by trade and loans;

2. Terms of exchange exceedingly favorable to farm products and food;

3. Greatly reduced incomes and decidedly poorer diets for most of the urban-industrial population of central and western Europe and austerity in food for the people of Great Britain;

4. Dividing the West from the East and in the process breaking up the trade between western Europe and countries to the east;

5. Controls over economic transactions by the occupying authorities in ex-enemy countries, and by governments in Europe generally giving rise to bulk buying, long-term forward contracts for farm products, and additional protection for agriculture; and,

6. Several new international agencies to facilitate rehabilitation, exchange relationships, investments, and trade.

Food and agriculture are among the newcomers in the United Nations. They married in order to join; the ceremony was simple. They appear to hold some unorthodox ideas on housekeeping and have, therefore, not been well received. All this portends no few stresses and strains.

The emphasis on food has come partly from nutrition, partly from the acute food shortages that have occurred since the end of World War II, along with the anticipated surpluses, and partly from the strong welfare orientation and progressive leadership that characterizes FAO. The nationalistic focus on agriculture is of long standing and has now completed a full cycle since the effective use of Ricardo's classical doctrine to help repeal the corn laws; for England has returned to protection for farmers, going far beyond simple duties on imports. In the United States agriculture emerged from the war substantially enlarged, competitively strong, but deeply enmeshed in a price policy inimical to

trade and adverse to many necessary adjustments. Meanwhile, against heavy odds, the Department of State is endeavoring to achieve conditions favorable to multilateral trade in the spirit of nineteenth century doctrines and practices.

Those who encourage the international focus on food want to achieve above all *better nutrition in the world;* those who support agriculture seek primarily *more price stability for farm products;* and those who favor multilateral trade want to attain *greater efficiency in the use of resources* among nations and, importantly, to keep an "open" society.

Each of these goals—better diets, stability, and efficiency—is in itself a worthy objective. It is obvious, however, that thus far in this country little has been done to integrate the three objectives into a single consistent general policy. What has happened instead is that each group with its special interest has gone its own way regardless of the consequences of its proposals to others. This driving off in different directions with regard to food, agriculture, and trade is more pronounced in the United States than in other major countries, and much harm is likely to result because the government of the United States is *peculiarly vulnerable to this kind of separatism* when it comes to high policy. The resulting inconsistencies cannot fail to have major adverse effects not only on domestic but also on foreign affairs by adding further to the political and economic uncertainty that already so heavily burdens policy-making in that sphere.

In this chapter I shall comment briefly on certain prevailing beliefs as to the nature of the problems that confront those trying to achieve better nutrition in the world, less price instability for farm products, and multilateral trade. I shall also comment on the basic forces shaping opinion and policies that have been emerging. I shall then turn to the task of formulating these problems in an economic context in order to facilitate analysis, and I plan to go far enough to indicate major lines of action for integrating food, agriculture, and trade policies.

The setting of this chapter is of necessity primarily American, simply because I cannot do otherwise in view of my experiences, beliefs, and valuations. My terms of reference are the United States with its high and rising material well-being, growing expert personnel in nutrition, rapidly advancing agricultural technology, and with its greatly increased responsibility in the world economy.[1]

[1] Professor Jacob Viner stresses this development in his paper *The Place of the United States in the World Economy* given before Conference IV, the Princeton University Bicentennial, October 8, 1946.

I Beliefs about the Problems at Hand

Nutrition is both knowledge and a movement; as knowledge its economic effects are of two sorts: it changes the value that people as consumers place upon foods (one food relative to other foods and food as a whole relative to non-food items) and, it increases the efficiency of food, thus making it possible to achieve a given diet [2] with fewer resources (less land, labor, and capital). Nutrition is also a social-political movement as more people come to support certain goals and measures with regard to food viewed by them as necessary in achieving the kind of diets that are essential for good health. Better diets, put forward as a social objective, make a strong appeal to the underlying humanitarian values in our culture; moreover, nutrition has given to social welfare a specificity and an apparent objectivity [3] for which many good people have long yearned. So far, however, nutrition is a Western flower. It has grown in rich soil, flourishing in countries where food is relatively abundant, where population growth has greatly diminished if not stopped altogether, where the gloom of Malthus no longer holds sway and where Ricardo's presupposition regarding the niggardliness of Nature [4] has been invalidated, not by words but by agricultural surpluses. With so much food at hand, and farmers (in Western countries) ever ready to produce more, a fact which was amply demonstrated during World War II, why should the mass of people in the world continue to suffer from inadequate diets? Many nutritionists view the failure to use our food-producing resources satisfactorily as merely a special case of poverty amidst plenty; nor is it difficult to understand why it should appear to them that the economic mechanism is to blame for this paradox. They ask: Do not most economists after all go back to a backward agriculture and to a time when little was known about nutrition for their doctrines and inspirations, back to Malthus on population, to Ricardo on food supply and to Say on the nature of the market?

[2] By a "given diet" I mean here a diet specified in terms of (1) its nutritional value and (2) its capacity to satisfy people's taste. The discovery that carrots grown in certain areas are much more nutritious than those grown in other sections with no other discernible differences, including no difference in cost, makes it possible to achieve a given diet with fewer resources.

[3] The Recommended Dietary Allowances of the Food and Nutrition Board of the National Research Council are a striking example. See Table I, p. 114, *Food for the World*, edited by Theodore W. Schultz, University of Chicago Press, 1945.

[4] I have in mind here, more specifically, Ricardo's basic assumption that the production function of land is uniquely fixed.

Those interested in food and nutrition have put their case as follows: [5] "The world needs more food both to feed more people and to feed people better." To achieve their 1960 target, "original calories would have to be increased by 90 per cent in comparison with prewar value. Fifty-five percent of this increase is accounted for by improvement in the diet and 35 percent by population growth . . . in the less developed countries [this] will require a great expansion in agricultural resources, and indeed in all other resources as well. Large increases in imports may be needed also. That would call for expanded production in exporting countries as well as production of commodities in the importing countries to trade for food. Nothing less is involved than a transformation of life in all its aspects which challenges the best efforts of science and industry, government and peoples." They contend that the needed additional food "will not come automatically." Positive international action will be necessary. "Without adequate international action, not only will the world's requirements for food not be met; there is danger of a regression to the trends of the 1930's, when the most technically advanced agriculture in the world had to repudiate its own progress and restrict production to avoid economic disaster." To avoid a return to restrictionism in agriculture and to achieve the desired nutrition goals *"A New Kind of Planning [is] Needed."*

Turning now agriculture, we find much that is old: Tariffs have not lost their glamour and every farm product that can conceivably be imported is a candidate for protection. The lowering of tariffs comes hard and slow, regardless of party vows and the good intentions of officials. On the export side the fine art of dumping has been made to serve many farm products. But to protect and dump is all very old. To these, however, have been added proposals for collective action on behalf of agriculture in the international sphere, notably commodity agreements and a world food board.

In most Western countries, certainly in the United States, farm people have become aware of their capacity readily to produce more food, more feed, and more fibers, and they also realize that it is very difficult to achieve a contraction in production, one of the lessons that the AAA has unwittingly taught them. Expansion in output comes easily in the more developed countries with improvements in skills and the availability of better techniques and more capital. Those who speak for agriculture see the production of farm products caught in this forward surge, and they

[5] Food and Agriculture Organization of the United Nations, *World Food Survey*, Washington, D. C., 5 July 1946. Pp. 19, 20, 25, 26, and 29.

are prone to ascribe the emerging surpluses not so much to maladjustments in production as to shortcomings of the market.

Leaving aside for the moment the specific vested interest in protection and in dumping, the primary correctives for the shortcomings of the market for farm products as viewed by those who seek to advance the interest of agriculture are twofold: (1) The size of the market should be increased [6]—people should have more and better food, and (2) farm prices should be made more dependable—heretofore they have been altogether too unstable. Obviously, in the first of these issues there has occurred a natural joining of hands of agriculture and those interested in better nutrition, and in the latter, of agriculture and those concerned about the cyclical instability of employment, production, and income of the economy as a whole.

It hardly seems necessary to outline the developments that have put this country in the forefront promoting freer trade arrangements. There is the reaction to the Smoot-Hawley episode, a tariff hike identified with the Great Depression, the achievements of a Secretary of State determined to free the channels of trade, and more recently the growing realization that the long-run interest of the United States with its advanced technology and ability to provide capital lies in the policies of Cobden and Bright as Great Britain relinquishes her leadership in industrialization and as a source of capital. The basic ideas supporting the doctrine of free trade are, however, not new. They are classical. They represent the fruit of economic analysis applied to the problem of achieving world wide efficiency in the use of resources and in practice have proved especially advantageous to countries in the vanguard in finance, industrial techniques and skills.

II Three Objectives Emerge

Three distinct goals emerge, one each for food, agriculture, and trade, which we have seen fit to call *better diets, more stable farm prices*, and *greater efficiency in the use of resources*. These goals, however, represent a mixture when it comes to ways and means, and in this, as has already been indicated, they are not at all points consistent one with another. Non-economic considerations are also involved but these we shall leave aside. Our next task, therefore, is to try to isolate and identify the more important characteristics of each goal as a policy objective in terms of

[6] The strength of this belief is manifest in the underlying assumption of the Hope-Flannagan Bill, Public Law No. 733, 79th Congress, authorizing much larger appropriations for the support of agricultural research with special emphasis upon studies to improve the market.

the conditions and institutions required to achieve the goal in the context of the problem at hand.

Let us take first the objective of better diets. With the state of knowledge about nutrition and taste given,[7] better diets go with the better incomes; as incomes rise, diets improve; the income elasticity for food of people in the higher income brackets, even of all people taken together in a rich country like the United States, is relatively low, while in the lower income brackets and in the poor, less developed countries it is relatively high. Again, with knowledge and taste given, the relation between diets and income indicates that the heart of the matter is to be found in the level and distribution of incomes.[8] Raising the level of incomes by increasing production is, of course, straightforward in its economic implications, although the task of attaining more real production per head is far from easy. Major unsettled issues, however, arise when the personal distribution of income is considered, issues both in analysis and in practice. In this, the primary unsolved problem that confronts those who seek to advance the objective of better diets in the world is the prevailing inequality in incomes, both within and between countries. The adverse effects of this inequality upon food consumption are, however, much less acute within the more highly developed countries, because with a high level of income diets are generally among the best and because the state has employed the progressive income tax and other measures to lessen somewhat the adverse effects of the unequal distribution of incomes among persons; but when we turn to the international sphere this problem and the way it impinges upon food is especially acute. Moreover, as yet *no rules, principles, and institutions have been developed,* first to check and then to lessen the very wide gap as between different nations in income per head, that is, between the backward, least developed, and the more highly developed industrial countries.[9]

[7] I do not want to leave the impression here that our knowledge about nutrition is perfect. Obviously, more expert knowledge is needed requiring experimentation, analysis, study, combined with much trial and error. Even more patent is the fact that the people acting as consumers or as agents to feed others do not possess for the most part even the most elementary knowledge about what is now known by the experts in nutrition. The task of advancing knowledge in this context, however, presents no new economic issues. It requires plans, organization, and funds for education in order to disseminate, diffuse, and demonstrate through public and private channels what is known and funds for research to add to our expert knowledge.

[8] This assumes, for the moment, that the cost of food relative to other products and services is not altered.

[9] In *The Conditions of Economic Progress* (Macmillan, 1940) Colin Clark includes a table (facing page 148) giving the national income produced per head of

At this point this problem can best be put as follows: It is feasible and desirable to develop social and political institutions to check, and also eventually lessen, the income inequality among people located in different parts of the world, between those in the less and the more highly developed countries? Institutions of this type would of necessity have to be international in their design. The question, however, arises—have people, particularly in Western countries, who enjoy positions of advantage, reached the stage where their humanitarian values and their ideas with regard to welfare, encompass and include other nationals? [10] The focus on food that has come with the advances in nutrition does indicate just this. The first impulse seems to be to proceed on a kind of *ad hoc* basis—in time of war to be generous with lend lease, in the event of emergencies provide food for relief, and now when surpluses accumulate, it is proposed to make them available to the poor of other countries. But in all this no guiding principle or overall institutions have emerged. The whole thing is very much on a hit-and-miss basis. Moreover, many real diffi-

working population, including individuals working and unemployed on a basis of a 48-hour week. In the figures that follow income is expressed in terms of Mr. Clark's International Unit.

	United States		*India*	*Difference between U. S. & India*
1870	730		112	618
1880	813		140	673
1921	1160		198	962
	Sweden		*Japan*	*Difference between Sweden & Japan*
1877–85	209	(1887)	72	137
1914	499		132	367
1922	572		183	389
1930	704		295	409
1936	804		337	467
	Australia		*Italy*	*Difference between Australia & Italy*
1901	645		210	435
1914–15	742	(1913)	328	414
1925	1051		350	701
1934	1094		399	695

[10] An interest in this problem also arises for other reasons. The growing awareness of people generally in the world of their lot compared to others more favorably situated gives rise among people in backward areas to restlessness and to political tensions and pressures. To counteract these, partly for reasons of security, people enjoying the highest real incomes may wish to take cognizance of the problem of income inequality.

culties will arise when an effort is made to proceed more systematically. We need to examine whether it is possible to do so (1) without perverting international agencies whose functions it is to operate counter-cyclically, (2) without raising new barriers and reducing the incentives for international trade and investment, and (3) whether other grants and aids, other than food, may not be better in achieving the expectations that go along with the goal of greater equality.

Much of what has been proposed with regard to food in the international sphere does not fit into the cost-utility calculus of economics, of relative prices to guide production and consumption, to achieve economy. In fact, a good deal of what has been said has not only been naïve but has been patently misunderstood by those who are concerned about economy, simply because some of the proposals for better diets have been rationalized in a cost-utility frame of reference whereas a very basic element of the problem is not amenable to this formulation. Much confusion and misunderstanding has arisen from the failure to identify and isolate the effects of the inequality of income on food consumption, inequality that is not lessened by trade or by counter-cyclical measures.[11]

Next let us consider farm product prices from the point of view of instability. There are many different facets—seasonal, cyclical, and secular characteristics are discernible. Price instability in each of these temporal situations may originate either on the supply or the demand side. All too little has been done to identify with care the particular types of price instability affecting farm products that can be dealt with on the international level. FAO in its proposal for a World Food Board boldly but indiscreetly embraced altogether too much when it indicated that the first function of this board would be "To stabilize prices of agricultural commodities on the world markets . . ." [12] Little can be gained from this formulation, for it actually gives no clue whatever for identifying the particular type of price instability that may be amenable to international action.

It is quite apparent that World War II and its early aftermath put farm prices in a most favorable position. In the United States farm prices soared to a legal parity of 132 in October, 1946. Surely, it should not be the objective in achieving greater stability of farm product prices

[11] I do not want to leave the impression here that trade, foreign investments, and full employment are not the primary means for bringing the real incomes of people up in the less developed areas of the world. I shall take up this point in Section III.

[12] Food and Agriculture Organization of the United Nations, *Proposals for a World Food Board*, Washington, D. C., 5 July 1946, p. 11.

to maintain these very favorable terms of exchange for agriculture. A major price transition is necessary and with it will come considerable instability in farm product prices. To delay, however, this transition when peacetime supply and demand conditions warrant lower relative prices for primary products would indeed do much harm. I am sure it was not the intention of those who proposed the World Food Board to resist or impede this transition in prices even though it causes considerable instability.

Acute food shortages, reaching the famine stage, in many parts of the world recently, once again, have focused attention upon crop failures as a cause of sudden scarcities and of price instability, as did the unprecedented droughts of 1934 and 1936 when we took steps to establish the ever normal granary. Are year to year variations in food production a primary cause of instability requiring remedial action by an international agency? The FAO report tells us that the second function of the proposed World Food Board would be, "To establish a world food reserve adequate for any emergency that might arise through failure of crops in any part of the world." [13] Yet, despite this belief that positive action is needed, the experience of pre-war years does not seem to indicate that a world food reserve is required, in addition to stocks and other supplies held on private and public account prior to the war, to avoid food shortages when crops are poor or fail in some part of the world.[14] When war has torn asunder the fabric of trade and finance and many nations are dependent upon relief and allocations for food, control by some kind of international agency is virtually indispensable, regardless of the causes that happen to give rise to the particular food scarcities. In this context the International Emergency Food Council has served an important and necessary function. But here again, as war-torn conditions recede and stocks accumulate, even though they do not reach pre-war levels, it

[13] FAO, *Proposals for a World Food Board,* p. 11.

[14] If we take pre-war production and carryovers as a benchmark, it appears that countries that depend mainly on cereals for food and, therefore, have little or no opportunity of using feed grain as food, can in the event of a short crop buy extra food grain abroad. The limiting factor in peacetime has been primarily financial. People in these countries simply have not had the resources to buy imported food grains even though supplies were readily available. In the case of feed supplies, there is much merit in establishing a large reserve in the United States. The gigantic livestock economy (cattle, hogs, sheep, chickens, and dairy) of this country is geared to a feed supply that varies greatly from year to year, and private carryovers have been altogether too small to compensate for even minor dips in feed output. Nor are there feed supplies in other countries, on which the United States can draw, sufficient to give any appreciable relief in holding livestock production steady.

may well be that the aggregate year-to-year variations in food production can be cushioned adequately by such stocks. In fact, the stocks of many storable basic foods were, if anything, excessive prior to the war when looked upon as offsets to shortages caused by adverse weather and low yields.

There are, of course, other causes for instability of farm product prices. The strictly seasonal increases and decreases in outputs illustrated by eggs represent an important type. The swings in production commonly ascribed to the hog and the beef cattle cycles constitute another. In these cases we need to ask, however, are the resulting fluctuations in farm product prices appropriate grist for an international agency authorized to stabilize farm product prices? The answer, at least for the present, appears to lie in the negative. I can hardly visualize how an international agency could come to grips with this type of price instability even if it had a mind to do so.[15]

These negative observations should suffice to make plain the need for identifying the instability in farm product prices for which international action is deemed necessary. I am prone at this stage to narrow and even limit the field to that instability associated with the periodic fluctuations in aggregate demand caused by the unstable character of the economy of Western industrial countries. This, of course, is the problem of the business cycle. It strikes two ways when depression conditions prevail: In secondary and somewhat less in tertiary industries, it gives rise to mass unemployment; and, in primary industries, to ruinously low product prices.[16] In the case of agriculture, in general, producers apply about the same production efforts regardless of short-run changes in economic conditions and the aggregate output of food, therefore, fortunately, does not follow the vicious rhythm of booms and busts. But the prices that producers receive are exceedingly sensitive to these short-run changes in economic expectations and accordingly with output stable, their income is notoriously unstable. A large number of important primary products enter world trade in substantial volume, sufficiently so to be affected by the prices of other countries, other than the countries in which the products are produced. The principal question here can be put as follows: Is it feasible and desirable to counteract this type of

[15] These product cycles are confined mainly to animal products, and storage or buffer stock operations are, for the most part, not applicable because of the perishability of the products. The rate of output of these products is a function of feed supplies and feed supplies cannot be kept even by counter-cyclical operations.

[16] There are some primary industries that suffer from unemployment also.

price instability by some international agency? Clearly, no such agency now exists. The International Bank for Reconstruction and Development is not authorized to undertake this task, nor is any other existing international organization.

To analyze the economic issues that this problem presents it is necessary, first, to identify the instability in farm product prices focusing at this stage strictly on the instability caused by the cyclical rise and fall in aggregate demand; second, to ascertain to what extent it is possible to counteract this type of price instability by national policies and programs without jeopardizing the objective of multilateral trade; and third, if national measures are not appropriate, to examine whether or not other more indirect means are better suited to this task when it is undertaken by an international agency. We shall return to these issues in the last section of this chapter.

The third goal which we listed at the beginning of this section, that associated with multilateral trade, the goal of efficiency in the use of resources in an interdependent world economy, has back of it the full weight of classical economics demonstrating the advantage of unfettered trade in bringing about in the long run the most efficient use of world resources. There is, therefore, no point in laboring the characteristics of this goal in its economic setting. We pass, therefore, to some reflections on policy pertaining to the three spheres—food, agriculture, and trade; better diets for more people in the world, less instability in farm product prices caused by the short-run fluctuations in aggregate demand, and more efficient use of resources as among nations.

III Major Lines of Action

In opening this section on policy it may not be amiss to remark that the economic foundations for both low or no trade barriers and for multilateral trade, for whatever trade did occur, are well established, an acceptable policy doctrine exists and the necessary institutions have been tried and tested.[17] Here then, we are on firm ground except in dealing with state trading and the socialization now growing apace in many countries on the one hand, and the concentration of economic power in fewer private trading firms on the other. Even so there is a positive policy

[17] There has been one historic dissent from this doctrine, namely, that a nation in the early stages of industrialization is at a considerable disadvantage in competing with the products of a country where industry is a going concern and well established.

design, singularly suitable and highly advantageous to the United States at this juncture of her economic development. Policy to counteract instability, however, does not have nearly so solid a base. Although this issue has been decidedly in the forefront in recent decades, especially since World War I, the problem of instability has not been resolved sufficiently to indicate what are the basic causes of the recurring short run fluctuations in aggregate demand. Counter-cyclical policy, accordingly, is in a much more unsettled state than is trade and investment policy when these abstract from or disregard instability. Despite the present state of enlightenment some steps will be taken to try to avoid at least the more extreme phases of the business cycle. The dangers of another major depression hang like a Damoclean sword over international economic affairs; the fear of mass unemployment and ruinously low primary product prices haunts both small and big nations dependent upon capitalistic institutions. To make any substantial progress in international economic relations, therefore, it will be necessary to allay this deep-seated fear.

The problem of welfare economics—viewed internationally, taking cognizance of the growing inequality in income between the less and the more highly developed countries, including its implications for nutrition —does not as yet have an economic rationale on which to build. Welfare economics where it deals with inequality is still strictly a national seedling, frail and not of healthy growth. Superficially, this problem does not seem as pressing as does the cycle; and if this is not an illusion, there should be time to think through and establish an acceptable foundation for welfare economics applicable to world conditions.[18]

Let us now turn to the major proposals in each of these three spheres and reflect briefly in closing on their respective limitations, especially as they relate one to another. Take first the proposals for achieving conditions more favorable for multilateral trade. Given the long view, there can be little doubt that these proposals would induce a better use of the productive resources of the world than would otherwise occur. The implications of this achievement to agriculture and food is all too often overlooked by those concerned mainly with the short-run maladjustments adversely affecting farmers and consumers. Much of the problem of chronic surplus of farm products is basically caused by too many resources devoted to farming, primarily an excess supply of labor engaged

[18] Economic welfare in this context focuses upon the effects of changes in the distribution of the "international" dividend; it is in keeping with Pigou's analysis in Part IV of *The Economics of Welfare.*

in agriculture. If costs of production are to approach that minimum and rewards to factors that maximum consistent with an optimum utilization of resources, it is necessary to continue to transfer much labor out and capital into agriculture.[19] A general lowering of tariffs and the removing of restrictions on foreign investments would give extra impetus to the expansion of production in secondary and tertiary relative to the primary fields, not only within the less but also and especially and more directly in the more highly developed countries. Nutritionists generally and many professional workers in agriculture apparently do not realize the extent to which Western countries have made some sectors of agriculture a refuge for labor resources engaged in inefficient lines of production, inefficient in terms of alternative employment if the channels for trade and investment were cleared. Nor should it be assumed here that it is only the major food deficit countries that err in this connection; upward of half of the farms in the United States are unbelievably inefficient in this context; these farms have a labor productivity far below that of most farmers in Western Europe, whereas when we consider the general level of output per head in the United States they should be much higher.

The Monetary Fund and the International Bank are important stepping stones on the road toward lower trade barriers; one much needed stone, however, is missing. Instead of finding it and putting it into place, ill-conceived detours have been undertaken which may seriously endanger the whole procession. No satisfactory international arrangements have been made to deal with the unstable character of the Western economy. Professor Jacob Viner has observed, ". . . a major point, on which . . . planning in the international financial field, so far as that planning has been made public, is seriously lacking in its scope . . . is the problem of international co-operation to avoid mass-unemployment." [20] It seems to me that those responsible for the American proposals [21] have been making the mistake, first of believing that lower trade barriers and multilateral trade will adequately enhance economic stability, second, of not giving the problem of instability the weight its deserves, and third, of letting anti-cyclical measures enter through the back door, measures

[19] See Chaps. III and IX of Theodore W. Schultz, *Agriculture In An Unstable Economy*, McGraw-Hill, 1945.

[20] "International Finance in the Post-War World," *Lloyds Bank Review*, October, 1946, p. 12.

[21] I refer here to the *Proposals for Expansion of World Trade and Employment*, November, 1945; and the *Suggested Charter for an International Trade Organization of the United Nations*, September, 1946, both by the Department of State.

of a type that are likely to compromise seriously the long run objective of multilateral trade.

Not enough stress has been put on the point that multilateral trade even under favorable circumstances is not likely to suffice to assure avoiding mass-unemployment and ruinously low primary product prices. Lower trade barriers tend to raise the quality and not the quantity of employment. They do not necessarily stabilize product prices cyclewise. Professor Viner also rejects the argument that routine, unplanned export of capital promotes either a greater volume of employment or more stability of employment.[22] Nor do unplanned capital exports neutralize the adverse effects of business depressions upon farm product prices.

The main proposals for achieving greater stability in employment and in primary product prices are as follows: Viner believes that "an International Employment Stabilization Fund" is required "endowed with very great financial resources" much like the International Bank, "but on a scale perhaps three to four times as great." [23] In this approach the primary reliance is put upon anti-cyclical investment operations; purchase and sale of commodities are, however, not excluded in Viner's plans for he indicates that a program "of accumulation of stocks of basic commodities for commodity stabilization and for the maintenance of 'ever-normal granaries' could readily be fitted into the operations of this agency." [24] Riefler has taken the recommendation advanced by the League of Nations Delegation on Economic Depressions [25] for an International Buffer Stock Agency and has outlined the form of organization, the nature of the capital funds and borrowing power required, and the procedural safeguards for such an agency.[26] The Twentieth Century Fund report on Foreign Economic Relations chaired by Riefler does not exclude investment operations, for it urges that the instructions of the International Bank be amended so that the Bank will act as a "contracyclical instrument to stabilize the flow of foreign investment." [27] The report, however, takes a more positive position favorable to buffer stocks

[22] Viner, already cited, p. 14.

[23] Viner, already cited, p. 16.

[24] Viner, already cited, pp. 16–17.

[25] League of Nations, *Economic Stability in the Post-War World,* Part II, Chap. XIX and part of Chap. XXI, 1945. Riefler was chairman of the Delegation that prepared this report.

[26] Winfield W. Riefler, "A Proposal for an International Buffer-Stock Agency," *Journal of Political Economy*, Vol. LIV, December, 1946.

[27] The Twentieth Century Fund, *Report of the Committee on Foreign Economic Relations*, 1946, p. 17.

in asserting that "A balanced foreign economic program adequate to deal with international aspects of the problem of depression also requires a 'buffer stock' policy." [28] In the case of the World Food Board suggested by FAO it would operate through commodity committees to stabilize prices but it woud not be restricted to counter-cyclical operations. Nor is there any provision for investment activities, other than that involved in buying commodities, to keep primary product prices from becoming depressed or for that matter to keep mass-unemployment from occurring. The proposed World Food Board, however, would have a number of additional functions which we do not need to consider here. Next, let us take the suggested charter for an International Trade Organization put forward by the Department of State.[29] Here the task of achieving full employment is not viewed as an international undertaking but is to be left to each country since "Each member shall take action designed to achieve and maintain full employment within its own jurisdiction through measures appropriate to its political and economic institutions." [30] Not even internationally negotiated and planned synchronization of national fiscal policies, weak as that would be, has been proposed. To deal with primary products the suggested charter for ITO endorses inter-governmental commodity agreements to regulate production, trade, and prices when "the root causes of the problem" are either a "burdensome surplus of the product" or unemployment in the particular industry producing the commodity not related to general business conditions.[31]

[28] The Twentieth Century Fund, already cited, p. 20.

[29] Department of State, *Suggested Charter for an International Trade Organization of the United Nations,* September, 1946.

[30] Department of State, already cited, Chap. III, Article 4, p. 2.

[31] Department of State, already cited. From article 45, p. 31, I quote, "Members agree not to enter into intergovernmental commodity agreements involving the regulation of production, trade or prices, except after

"a. investigation by the Study Group of the root causes of the problem which gave rise to the proposal;

"b. determination, under procedures established by the Organization in accordance with paragraph 6 of Article 55, either

"1) that a burdensome surplus of the product concerned has developed or is developing in international trade and such burdensome surplus would, in the absence of specific governmental action to prevent it, be accompanied by widespread distress to small producers accounting for a substantial portion of the total output and that these conditions cannot be corrected by the normal play of competitive forces because, in the case of the product concerned, a substantial reduction of price leads neither to a significant increase in consumption nor to a significant decrease in production; or

"2) that widespread unemployment, unrelated to general business conditions, has developed or is developing in respect to the industry concerned and that such unemployment cannot be corrected by the normal play of competitive forces rapidly

The governing principles seem to be designed to deal with long-run maladjustments in production, with the problem of excess supply of resources in sectors of agriculture, for example, and not with short-run fluctuations in aggregate demand.[32]

From one point of view it might be argued that these proposals are not alternatives because each deals with a somewhat different problem and accordingly what matters is whether they complement each other and whether each is necessary. The Department of State would use commodity agreements to remedy chronic maladjustments in supply caused by excess supply factors in a given primary production field. Riefler's plan is for a separate international agency to stabilize the prices of primary commodities cycle-wise. Viner puts commodity stabilization operation in a secondary place making it a part of an international agency that engages chiefly in investment operations to avoid mass-unemployment and, presumably in doing this, also lessen substantially the short-run fluctuations in primary product prices.

Put as alternatives, I believe that if we were successful in keeping employment high and on an even keel most of the need for counter-cyclical operations in the commodity field would disappear. If Viner's proposal for an International Employment Stabilization Fund were adopted and if thereby unemployment were kept from falling below, let us say, 5 per cent of the labor force, when the aggregate demand started to decline cyclewise, commodity prices would no longer be burdened with that excessive instability characteristic of them since World War I. Failing, however, to achieve this goal,[33] an International Commodity Organiza-

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enough to prevent widespread and undue hardship to workers because, in the case of the industry concerned, (i) a substantial reduction of price does not lead to a significant increase in consumption but leads, instead, to the reduction of employment, and (ii) the resulting unemployment cannot be remedied by normal reemployment processes."

[32] The San Francisco charter and agreements appear to call for more international action to avoid widespread unemployment than the suggested charter prepared by the Department of State provides for.

[33] Even if an international agency were established with ample resources and instructions to avoid mass-unemployment, it would probably take considerable time to develop appropriate investment operations and a procedure that would command sufficient confidence to make it possible to keep unemployment from rising to substantial levels when aggregate demand fell cycle-wise. It might take years for business expectations to come to reflect confidence in these counter-cyclical operations. Until this occurs, purely as a safety measure, (1) the scale of operations of the anti-cyclical agency would need to be greater, and (2) there would be a greater call for buffer stock operations.

tion would be preferable to specific commodity agreements for the purpose of counteracting the short-run fluctuations in demand caused by the cycle. Commodity agreements as conceived by the State Department are not suited for buffer stock operations strictly counter cyclical in nature.[34] A commodity agreement deals with a single commodity and it therefore becomes oriented toward the particular production, trade, or price problem of that commodity.

National programs for agriculture may be looked upon as still another way of counteracting short-run fluctuations in aggregate demand. Programs to support farm product prices are in this category; another consists of income payments counter-cyclical in design. Compensatory income payments to farmers during a depression have the merit of keeping the channels of trade open and also of avoiding production controls. The cost of this approach is sufficiently great to keep most countries with primary producers who are most vulnerable from providing this kind of income protection. In general, the wealthier the country and the smaller the proportion of its output in primary products, the better it is situated undertake income payments to farmers to offset the adverse effects of business fluctuations. In any case, income payments of this type are not intended to stabilize farm product prices; these would continue to fluctuate as before except as the income payments themselves might cushion slightly the fall in aggregate demand.

Price support programs on a national basis for products that can be stored are in substance miniature buffer stock operations. In principle, in the case of products entering world trade, the country operating a price support program does cushion the downward movement of world prices by its buying and storage operations, unless it resorts to export dumping. National programs of this type are also too costly for all except the wealthier countries; they have, in addition, some major disadvantages compared to income payments in that they tend either to clog the channels of trade or to bring about export dumping.

Lastly, then, we come to the proposal of FAO for achieving better diets where income is inadequate. We leave aside here the benefits that can be realized from the extension of knowledge with regard to nutrition,

[34] It is my impression that those in the United States Department of Agriculture favoring commodity agreements take a much more "nationalistic" point of view than that expressed in the State Department proposals. Leading spokesmen for the USDA seem to view commodity agreements as an "orderly" means for bailing out domestic agriculture caught as it is in a snarl of price supports, export subsidies and production controls. This view also fits in readily with the strong protectionistic position of important commodity pressure groups in agriculture.

from industrialization, from the export of capital, technology and skills and from trade. At this point we are not appraising measures to increase the productivity of people and thereby increase their real income and their ability to acquire more and better food. With incomes as they are, what can be done? The FAO suggests this: "Provide funds for financing the disposal of surplus agricultural products on special terms to countries where the need for them is most urgent." [35]

Within the more advanced countries a few programs have been developed to supplement the diets of people with inadequate incomes without obstructing trade and investments, that is, without reducing the efficiency of the economy in terms of resource allocation. In fact, some additional efficiency may have been achieved, especially if we take the long view. These devices, however, do not appear to be applicable to India, China, and other countries in the early stages of industrialization. Three major considerations arise: (1) Can "surplus" food be allocated to the less developed countries and distributed and not affect adversely trade and investment and, importantly, the necessary transfer of resources out of some major sector of agriculture? Tentatively, the situation points to a negative answer. (2) When steps are taken to help people whose food needs are the most urgent, can the food be distributed in ways that will not induce further population growth? My guess is that we do not know. (3) Lastly, why focus on "food" rather than on the general standard of living? Are we not in danger of overemphasizing food relative to clothing, shelter, fuel, and medical care by this procedure? What we want to see achieved are higher real incomes per person. To do this the main goal must be higher productive capacity.

[35] Food and Agriculture Organization of the United Nations, *Proposals for a World Food Board,* Washington, July, 1946, p. 17.

17

Lessons on Trade from Wartime Experiences[1]

EMPLOYMENT AND INCOME, when high enough to absorb all resources, give rise among producer groups to a political outlook that is favorable to freer trade, both internally and externally. Depression with its many unemployed resources, on the other hand, seems to lead to political developments that favor the erection of additional trade barriers and that thus isolate further not only the national economy but also one segment from another. From 1940 to 1945 the imports of many agricultural commodities rose sharply, especially imports from Canada. Feed bulked particularly large among these imports. American farmers who produce and sell feed did not become politically restive, however.

A war on the scale of World War II, one might expect, could only disrupt and destroy foreign trade because wartime trade controls, scarcity of shipping, and military considerations then dominate trading relations with other countries. Markets and commerce face blockade and counter-blockade. Some countries which normally supply essential raw materials and industrial products are in danger of falling into the hands of the enemy. Foreign transactions are burdened with much risk and uncertainty. Price levels among countries fail to stay in line with one another. The principle of equality of treatment (the "most-favored-nation clause") is placed in abeyance as the nation proceeds with an eye to economic warfare and victory. But one of the lessons to be drawn from the experiences of World War II is that a war also can open certain channels of trade.

I War Opened Trade Channels for Farm Products

World War II saw the United States lower important barriers to trade. The (effective) demand of the government and of the civilian population for goods and services greatly exceeded their supply at existing

[1] I am indebted to Bert F. Hoselitz and J. M. Letiche for assistance and criticism in the preparation of this chapter.

prices even with the nation's labor force overemployed. It became evident that war economy could be like the crest of a flood, overflowing banks and cutting new channels. In many sectors the foreign trade of the United States expanded and during the war flourished. It would appear that both imports and exports of the war period reflected the comparative cost structure of this country and the countries with which we traded no worse and probably better than did the foreign trade of the United States during the inter-war period. This means that the foreign trade which was carried on during the war was probably more rational in the use of world resources accessible to us than was the trade of the twenties and the thirties. The United States not only made way for imports but sought them, even exhorting her neighbors to produce more! It is of paramount importance to note that the United States urged other countries to produce and to sell to us the products in which they excelled, which is, after all, the fundamental test as to whether or not foreign trade adds to the national income.

Consider the case of Canada and Mexico. Instead of blocking every effort of these two countries to sell competitive commodities in our market, as the United States has persistently done during peacetime, we purchased so much from them during the war that both of these countries found it advisable to protect themselves from the resulting high prices and from what appeared to them an insatiable American demand.

This experience is not cited to suggest that war does not wreck most of the peacetime international machinery for carrying on foreign trade, but to call attention to the actual changes that occurred in exports and imports. An expanding economy, as was the case from 1940 to 1945, was an important factor in opening the channels of trade even though most of the "normal" marketing machinery was put out of use. If we contrast this with a stagnant period, such as prevailed during many of the inter-war years, and which gave rise to political attitudes favoring protectionism and the erection of trade barriers isolating the national economy, we find that the ability to export and the willingness to import certainly are enhanced when the economy is expanding, while on the other hand, unemployment breeds a spirit of defeatism both at home and in the sphere of foreign trade.

II Prerequisites for Freeing Trade

It is not easy to overrate the importance of full employment and high production in attaining the goal of freer trade. The war made this

evident in many ways in the course of the mobilization of the domestic economy.

1. High level of production

The war experience consisted first, of a rapid expansion in production (that of agriculture increasing at the rate of about 6 per cent per year from 1940 to 1944 and industrial production rising at the amazing rate of 30 per cent a year). Then the United States attained a level of production so high that some resources, certainly a part of the labor force, was overemployed and because of the way in which the war was financed the inflationary forces became increasingly more powerful. Under these circumstances many additional imports were drawn into the American economy. These imports facilitated a further expansion in production and they helped in some measure to check price inflation caused by the rapidly increasing money supply.

The imports of feed grains were a striking case in point. Feed became exceedingly scarce in the United States in 1943 and 1944 as a result of the sharp increase in output of livestock and animal products. Feed entering commercial channels dwindled to a point that farming areas dependent upon an in-movement of feed were for a time seriously threatened by shortages, affecting adversely especially dairy and poultry production.

Imports of feed (including wheat "unfit" for human consumption and rye) rose from 5 million bushels in 1939 to 18 million in 1942, then to the unprecedented figure of 246 million bushels in 1943, and during the first 10 months of 1944, to 224 million bushels. Much of the grain entered duty free under war emergency rulings. About 150 million bushels entered free of duty during the first 10 months of 1944.

These extraordinarily large imports consisting of several hundred million bushels of feed did not give rise to any "protest" from producers of feed grain in the United States. The National Grange, which for many years has favored a policy of high tariffs, took a position supporting these imports. This is, of course, quite understandable since a considerable part of the membership of the National Grange is situated in feed deficit states. Let it not be overlooked, however, that these imports were an important factor in holding feed prices in check. In fact, they contributed to the drop in the prices of corn, oats, and barley late in 1944, bringing these commodities below the price ceilings. But even so, feed prices were high, agriculture was prosperous, as were farmers in the

major surplus feed producing areas. And, it is apparent that under these conditions producers of feed were prepared to accept additional imports, even free trade.

An important part of this lesson is that the feed imports did not give rise to any unemployed resources in the United States; in fact, they were required to permit the further expansion of livestock production, and for holding farm commodity prices in check. When the demand for farm products is strong and expanding, and resources in agriculture fully employed, we may well expect that a large majority of farmers will not enter any political objections to measures designed to free the channels of trade.[2] It is well, indeed, to look upon a high level of production and employment in the American economy as a prerequisite for freeing our foreign trade barriers, including the many tariffs that obstruct it.

TABLE I

United States Imports of Selected Feed Grains, 1939–44
(*Millions of Bushels*)

Commodity	1939	1942	1943			January-October, 1944		
	Dutiable	Dutiable	Free	Dutiable	Total	Free	Dutiable	Total
Wheat unfit for human consumption	0.2	0.2	[a]	0.1	0.1	1.2	10.2	11.4
Barley	0.8	6.4	[a]	44.6	44.6	6.8	25.9	32.7
Oats	4.3	9.3	0.2	76.5	76.7	46.9	24.5	71.5
Rye	[a]	0.4	0	2.1	2.1	5.7[b]	3.5	9.2
Unhulled ground oats	[a]	2.1	0.1	122.8	122.9	90.7	8.3	99.0
Total 5 feed grains	5.3	18.4	0.3	246.1	246.4	151.3	72.5	223.8

[a] Less than 50,000 bushels.

[b] Includes approximately 500,000 bushels of rye (valued at $50,000) entered free as ship stores.

Source: U. S. Department of Commerce, Foreign Commerce and Navigation of the United States, 1939, and U. S. Department of State, 1945.

[2] A notable exception arises as farmers acquire a vested interest in certain price policies; this is particularly true of the existing price support program, tied as it is to an obsolete parity formula. Under these circumstances foreign trade is forced to act as a buffer, and various devices, including dumping, are used to maintain the existing agricultural price policy.

TABLE II

UNITED STATES IMPORTS OF SELECTED FEED GRAINS 1939–1944

(*Millions of Dollars*)

Commodity	1939 Dutiable	1942 Dutiable	1943 Free	1943 Dutiable	1943 Total	January-October, 1944 Free	January-October, 1944 Dutiable	January-October, 1944 Total
Wheat unfit for human consumption	[b]	0.1	[b]	0.1	0.1	1.4	12.6	14.0
Barley	0.3	4.3	[b]	31.4	31.4	5.9	22.5	28.4
Oats	1.5	3.9	.2	39.6	39.8	38.5	16.0	54.5
Rye	[b]	0.3	.0	1.6	1.6	5.8[a]	3.6	9.4
Unhulled ground oats	[b]	[b]	[b]	25.4	25.4	2.6	0.2	2.8
Total 5 feed grains	1.9	8.6	0.2	98.1	98.3	54.2	54.9	109.1

[a] Includes approximately 500,000 bushels of rye (valued at $50,000) entered free as ship stores.

[b] Less than $50,000.

Source: U. S. Department of Commerce, Foreign Commerce and Navigation of the United States, 1939, and U. S. Department of State, April, 1945.

2. Resources that are transferable

In order to gain from lower tariffs, it is necessary that resources displaced by additional imports can be transferred into other and more productive uses. The opportunities for making transfers of this kind certainly are enhanced by expanding production in alternative fields, for such opportunities are usually at hand during periods when the economy as a whole is expanding. In the broad, the experiences of the United States from 1940 to 1945 indicated the relative ease with which most resources can be allocated to new uses when incomes rise, thus facilitating adjustments of the type that are required when tariffs are reduced.

Agricultural production in the United States rose from an index of 106 in 1939 to 133 in 1944. Food production increased somewhat more, rising from 106 to 138. There were marked differences, however, among farm products. Some actually decreased, for example, butter, rye, and sugar beets, while others doubled, for example, soybeans. The wide differences in the rates of expansion of farm products was caused by relative changes in prices and costs and various fortuitous factors, principally weather. The pronounced expansion in oil-bearing crops was the result of a price policy designed to bring about that increase. The sharp

increase in hogs in 1943 and 1944 must be explained largely as a response to cheap feed relative to high and fairly certain hog prices.

Other commodities, however, were affected primarily by changes in relative cost. As labor in agriculture became scarcer and wages rose, relative to the price of other factors, products like potatoes and most field vegetables and cotton were held in check more than were soybeans, corn, and wheat by these changes in costs.

III The Case of Wool and Sugar Beets

Wool and sugar beets provide two excellent examples of how products at a comparative disadvantage in the American economy lost ground as the wartime expansion took place.

The production of wool dropped from 436,000,000 pounds in 1940 to 418,000,000 in 1944. The production of lamb and mutton, dressed weight, in 1944 was only 12 per cent higher than the average annual production during 1935–39. This small increase is in sharp contrast with the 35 per cent increase in dressed weight of beef and veal and the 75 per cent increase in pork. The resources used in producing sheep may be diverted in several ways: the grass and hay may be fed to beef cattle; grain fed to sheep may be diverted to hogs, beef cattle, chickens, and dairy cows. The labor, of course, can be transferred to many alternative uses both within agriculture and in non-agricultural fields.

The changes that occurred in the relative prices during the period were not particularly unfavorable to wool and to lamb and mutton. Wool prices rose 79 per cent from the 1935–39 period to July 15, 1944, while prices of beef cattle rose 78 per cent. During this same period the price of lambs rose 63 per cent, sheep 55 per cent, and hogs 52 per cent. The indication is that sheep grown for wool and for mutton were, however, at a considerable disadvantage in their competition for resources (against other agricultural products) in an expanding economy of the type that prevailed from 1940 to 1944.

The evidence with regard to sugar beets is even more conclusive. The production of sugar beets from the 1935–39 period to 1944 dropped 33 per cent, while dry edible beans, a competing crop in many areas, increased 16 per cent and potatoes 6 per cent. A very sharp drop in sugar beet production came in spite of the fact that increases in the prices of sugar beets (payments received by mills and farmers) were greater than those for beans. Prices of sugar beets increased 82 per cent from the 1935–39 period to July 15, 1944, and the price of beans increased 74 per cent; potatoes, however, rose somewhat more than did sugar beets.

The pronounced drop in the production of sugar beets must be interpreted as a significant measure of how vulnerable this product is in American economy when resources are fully employed. The nature of the cost entailed in growing sugar beets and the tariff that has been necessary in the past is fairly conclusive evidence that this product is at a considerable comparative disadvantage.

In addition to the evidence that this experience provided on changes in the comparative cost of various farm products when production is at a high level in the United States, these experiences of World War II demonstrated that many resources in agriculture are transferred readily when a high state of prosperity prevails. Sugar beets and wool are an example of this. Some of the labor and the land employed in their production was shifted to alternative uses, and it was done more rapidly than might have been supposed.

The lessons on trade to be drawn from our wartime experiences set forth in this chapter may be summarized as follows:

1. Efforts to mobilize the American economy for war brought about a notable expansion in employment, production, and income, and one of the significant effects of this development was to open certain channels of trade.

2. In the case of agriculture the imports of feed are highly instructive. Feed imports, used as raw materials to produce animal products, rose from about 5 million bushels in 1939 to 18 million in 1942, then to the unprecedented figure of 246 million in 1943 and to 224 million bushels during the first 10 months of 1944. About 150 million bushels entered duty free under war emergency rulings.

3. The experiences of the United States from 1940 to 1945 made evident the fact that when the economy is expanding resources displaced by additional imports can be readily transferred into more productive uses. Wool and sugar beets, products which have been at a competitive disadvantage in the American economy lost ground. The production of wool dropped about 5 per cent, and that of sugar beets 33 per cent. On the other hand, competing crops and products increased markedly, some by 75 per cent.

4. This study suggests that there are two important conditions that are conducive to political attitudes among producer groups favorable to freeing the channels of trade. These are (1) an economy with resources fully employed and (2) a set of resources in the protected industries that can be transferred readily to alternative uses.

18

Supporting Agricultural Prices by Concealed Dumping

THE UNITED STATES has been drifting into a policy of concealed dumping, especially in the case of farm products.

1. Conditions leading to dumping

International economic relations have recently been sufficiently disorganized to obscure the value that many products will have under more normal conditions. Food, feed, and fibers have been extraordinarily high relative to other product prices. All manner of export and import devices have been employed to alleviate the hardships that have arisen as a result of widespread economic disorganization in the world.

Meanwhile, the United States has remained committed to its pre-war agricultural price policy, although the controls for achieving that policy have been held in abeyance for the simple reason that nearly all farm prices have been above the support level specified by existing laws.

When farm prices decline to levels requiring the government to step in and support them, will the United States use the European recovery program to dispose of such farm "surpluses" and thus engage in concealed dumping instead of revising its obsolete agricultural price policy? This chapter will be directed to this query.

This drift in policy must be viewed in a somewhat larger setting, however. We need to take cognizance of the fact that the measures designed to support agricultural prices reach far beyond the type of protection usually ascribed to tariffs. Suffice it to say that the devices already authorized [1] are quite inconsistent with multilateralism; they

[1] See D. Gale Johnson, "Reconciling Agricultural and Foreign Trade Policies," *Journal of Political Economy*, Vol. LV, December, 1947, for a brief review of developments in this area.

obviously do not square with the objectives of the Reciprocal Trade Agreement program or with those of the International Trade Organization. If there remain any doubts on this point, one needs only to study the debates in Congress (particularly in the House) on the Wool Act of 1947.

But will the existing agricultural legislation, keyed as it is to parity, result in maladjustments in trade? The relevant issues may be more precisely formulated as follows: Will the prices of farm products be significantly higher than their pre-war levels—enough higher to keep them above their legal support levels? The answer, of course, depends in large part on whether the existing legislation is modified to fit prospective competitive conditions. In passing it should be pointed out that the need for modification will not become urgent if the European recovery program becomes, among other things, a mechanism for disposing of farm "surpluses." Moreover, it is my belief that this "misuse" of the European recovery program is going to occur unless certain essential safeguards are forthcoming. Most important, Congress must make a firm decision to abstain from dumping in connection with the European recovery program and take steps to overhaul America's agricultural price policy.

2. The terms of trade of farm products

The belief is now widespread that we have entered an era favorable to the value of primary products, especially of farm products. According to this belief, food will not become nearly as cheap relative to other products as it was during most of the inter-war years. The Malthusian devil is back—the terms of trade of agriculture stand to profit.

A sophisticated argument supporting this view is based on the price and income effects ascribed to high employment; the inordinate demand for food in recent years is taken as evidence on this point. As early as 1941, looking ahead to 1960, Colin Clark ventured the view that ". . . the terms of trade of primary produce will improve by as much as 90 per cent from the average level of 1925–34." [2] A rough translation of this figure would mean farm prices at about 140 per cent of parity, which is substantially higher than anything that occurred during the war and post-OPA period. The optimism in agricultural circles is less heroic; spokesmen for the Department of Agriculture and Land-Grant Colleges are willing to settle for full parity, which means, however, that

[2] *The Economics of 1960*, Macmillan, 1943, p. 52.

the relative position of farm prices must rule at least 25 per cent higher than they did in the late thirties. It is only fair to list the reasons for this position: (1) Certain post-war maladjustments contributing to the scarcity of food in the trading world will be with us for years to come. The industrial people of Western Europe will obtain much less food than formerly from Eastern Europe; in the East, Pakistan will export little or no food to the Dominion of India; and, in China, production and trade will suffer greatly from political instability. (2) Full employment will be more typical of the years ahead than it was during the inter-war period, very appreciably enlarging the demand for farm products. (3) Given favorable job opportunities in industry, the movement of people out of agriculture will be accelerated; as a result, labor costs in agriculture will rise relative to wages in industry. (4) "Old Man Diminishing Returns" will make himself felt more vigorously in agriculture than in most of the other main pursuits as full employment takes over. (5) Food consumption will be subsidized on welfare grounds as it is in our own school lunch program and (currently to the tune of 400 million pounds a year) in the United Kingdom. All these developments, so the belief goes, will combine to pull farm prices up to at least full parity for the next five to ten years. Since our agricultural legislation does not specify price floors above 90 and 92½ per cent of parity, no major difficulties need be anticipated.

Clearly much, therefore, depends on the course of economic development and its effects on the terms of trade of farm products. The beliefs of the present writer on this matter can be put quite simply:

1. The United States is not likely to succeed in averting the occurrence of sharp and sudden fluctuations in employment and income. The terms of trade of agriculture are highly sensitive to the state of employment and income. They will continue to be erratic (not necessarily as violent as was the case during the period from 1914 to 1947), falling sharply in periods of unemployment, and rising abruptly when employment and income surge upward. Even if the value of farm products were to average parity over the years (under competitive conditions) and if the parity of each farm product were adjusted to reflect its true long-run value (relative to other farm products), farm product prices will drop below parity periodically—in fact, below support levels based on 90 per cent of existing parity.

2. The average value of farm products is likely to be substantially below parity during the next three to five years, provided there is no war. Europeans and others now drawing heavily on the United States

for food [3] because of the existing disorganization will find it to their advantage, as conditions improve, to buy more capital goods and less food in this country. Meanwhile, prices of farm products—since they are much higher in absolute terms than before the war—are likely to induce (even at 85 to 90 per cent of parity) some increase in agricultural production; capital will replace labor, fuel will be substituted for feed, and these shifts will increase the amount of food marketed by farmers; and in many sectors of American agriculture there will be increasing returns to scale, pointing toward lower unit costs.

3. Lastly, there is the glaring fact that—whereas parity for farm products, taken as a whole, may not be more than 10 to 15 per cent too high under conditions herein postulated for the next three to five years—the parity figures of a number of major farm products are far out of line with economic realities.[4] Moreover, the parity figure that really matters is that of the particular farm product because it is that figure which determines the level of the support price. As a generalization it is safe to say that the bulk of the farm products most overvalued by the existing parity formula are those normally entering export trade.

The sum and substance of the present argument is that, as it now stands, the agricultural price policy of the United States will lead to (1) holding the domestic price of a number of important farm products above competitive levels, (2) dumping some of these farm products abroad, and (3) reverting to the pre-war vintage of production controls.

[3] In 1940 all but 2.2 per cent of the total food disappearance of the United States (5.5 per cent from imports) went to U. S. civilians. In 1947, although imports were down, only 90 per cent of the total food disappearance was claimed by U. S. civilians. If the domestic food supply had been 7.8 per cent larger (outshipments on a pre-war percentage base), and assuming that the price elasticity of farm products is 0.25, farm prices would have ruled about 30 per cent lower than their actual level. Another way to get a feeling of the magnitude of our food shipments abroad is to translate them into calories. In 1946–47 the United States shipped enough food to feed 100,000,000 people for a year at a diet of 1,350 calories a day.

[4] We can get some indication of how far out of line parity was when tested against prices received by farmers on February 15, 1948, from the following data: U. S. Department of Agriculture, *Agricultural Prices,* February 27, 1948, p. 5):

Prices as a percentage of parity

75 and less	*76 – 85*	*86 – 95*	*95 – 105*	*106 – 115*	*116 – 125*	*126 and above*
Hay (67)	Peanuts	Grain sorghum	Wheat	Barley	Corn	Rice (154)
Grapefruit (16)	Apples	Chickens	Oats	Sweet potatoes	Soybeans	Beans (134)
Oranges (24)		Eggs	Cotton		Hogs	Beef cattle (146)
Lemons (42)			Potatoes		Milk	Veal (138)
						Lambs (142)
						Butterfat (127)

3. Dumping postpones revision of agricultural policy

There is imminent danger that the European recovery program will become a convenient instrument for dumping; when prunes or raisins, wheat or cotton, eggs or tobacco, fall to the support level specified by parity, the Commodity Credit Corporation will go into action and buy,[5] then route its purchases to the accounts of the European Recovery Administration. What could be simpler? The danger is real and the adverse effects will be all too significant. The reluctance of Europeans to take the particular farm products that become "surplus" will not stem the tide. Moreover, the procedure will hardly be subject to public scrutiny; it certainly will be less open and aboveboard than a direct export subsidy. It will be dumping and it will be concealed.[6]

Our agricultural policy can and should be made consistent with our professed trade policy. It should not be allowed to revert to production controls and to the use of commodity loans and surplus disposal operations to dump "surplus" farm products abroad.

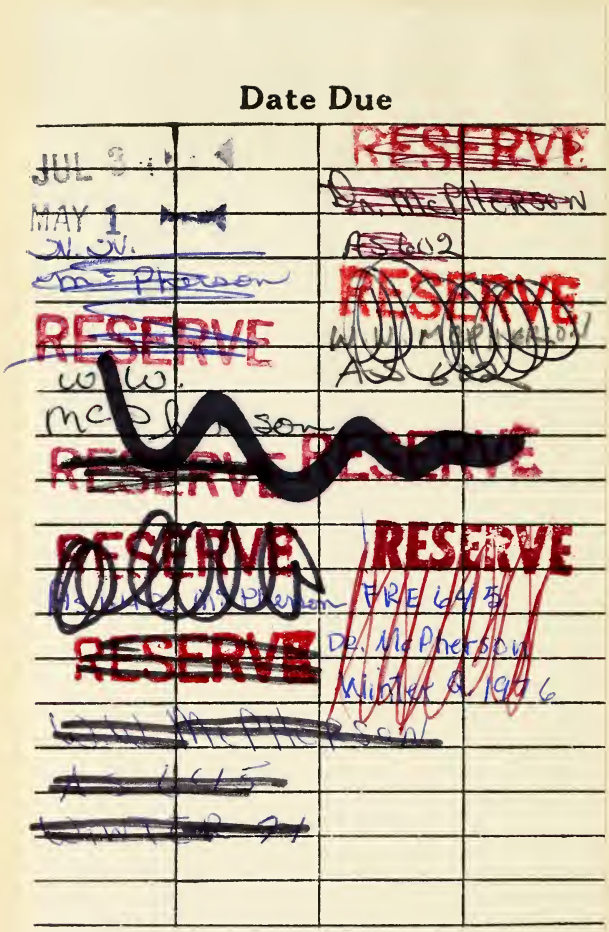
On the positive side the main lines of action have been treated in considerable detail and need not be repeated.[7] The price and income problem in agriculture caused by sudden fluctuations in employment and income seems to require the transfer of income into agriculture by means other than through use of the price system. Income transfers of this type should be strictly counter-cyclical in design; they should not induce production decisions in agriculture inconsistent with long-run requirements; and they should not clog the channels of trade.

[5] Government purchases of dried fruit in 1947 are illustrative of this development. To assist dried fruit producers, the U. S. Department of Agriculture purchased 203,000 tons, about one-third of the 1947 production. Of this 24,000 tons are being used in the School Lunch Program and the remainder is available for relief feeding abroad. *The Demand and Price Situation*, U. S. Department of Agriculture, February, 1948, p. 12).

[6] Since this was written, the Senate has amended the European recovery program to promote the dumping of farm products, fully confirming the view taken here. This amendment is designated to utilize the European recovery program to dispose of so-called burdensome agricultural surpluses. To "encourage" the participating countries to take these products, the Secretary of Agriculture is authorized to "pay" up to 50 per cent of the sales price. The Senate's discussion on the use of this device to support the existing agricultural price policy clearly reveals the drift in legislative thought. *Congressional Record*, 80th Congress, 2nd Session, Vol. 94, No. 48, Saturday, March 13, 1948, pp. 2797–2804.

[7] See Chapter VIII and also D. Gale Johnson, article already cited, and his *Forward Prices for Agriculture*, University of Chicago Press, 1947, and Theodore W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill, 1945.

Index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